Troubleshooting Guide

Models: KRFC604FSS01, KRFC604FSS02 , KRFC604FSS03 , KRFC704FBS01, KRFC704FBS02, KRFC704FBS03, KRFC704FPS01 , KRFC704FPS03 , KRFC704FPS04 , KRFC704FSS01 , KRFC704FSS02 , KRFC704FSS03, JFFCC72EFP02 , JFFCC72EFS02 , JFFCC72EFS03 , JFFCC72EHL01 , JFFCC72EHL02, WRF954CIHB00 , WRF954CIHB01 , WRF954CIHM00 , WRF954CIHV00 , WRF954CIHV01, WRF954CIHW00, WRF954CIHW01, WRF954CIHZ00 , WRF954CIHZ01 , WRF954CIHZ02 , WRF954CIHZ03

Introduction

The following Troubleshooting Guide is designed to further support Whirlpool's service community in diagnosing and repairing various product performance issues. Most symptoms reported by customers have multiple possible causes. This Troubleshooting Guide uses a "fault-tree" approach to detail the diagnostic steps servicers should follow in order to better diagnose the causes of these issues and ensure the appropriate scope of repairs.

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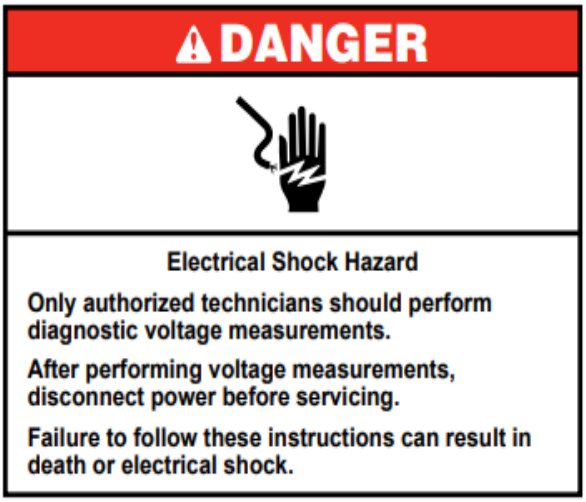

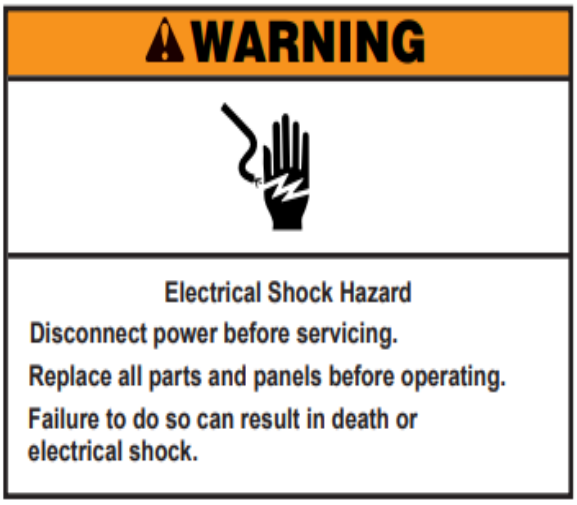

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

- **Verify the controls are in the off position so that the appliance does not start when energized.**
- **Allow enough space to perform the voltage measurements without obstructions.**
- **Keep other people a safe distance away from the appliance to prevent potential injury.**
- **Always use the proper testing equipment.**
- **After voltage measurements, always disconnect power before servicing.**

IMPORTANT: Electrostatic Discharge (ESD) Sensitive Electronics
ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an antistatic wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

  -OR-

  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

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Cooling Issues

⚠ DANGER

Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

⚠ WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

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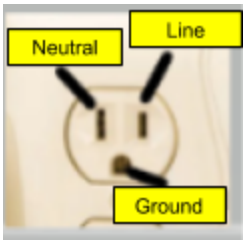
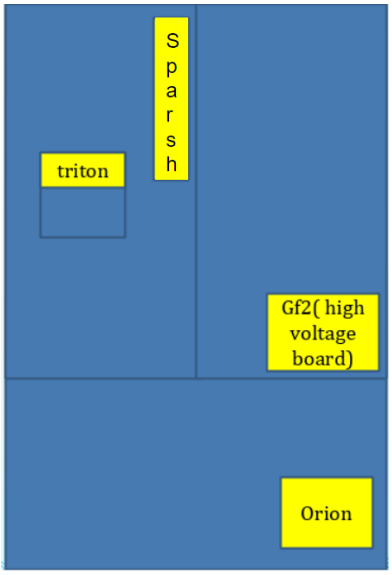
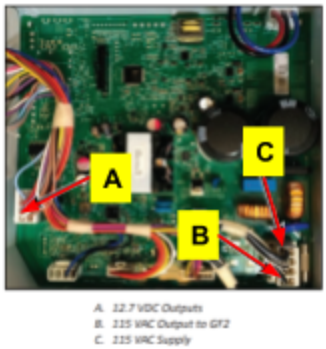
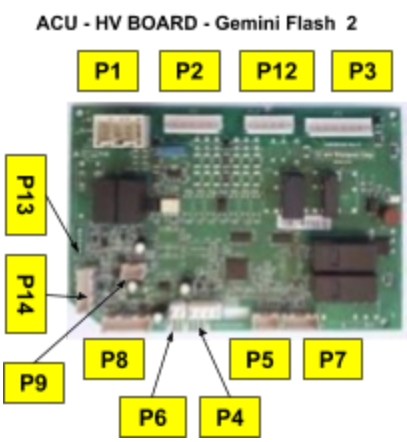
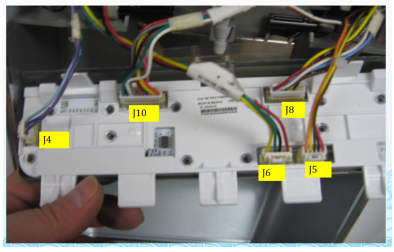
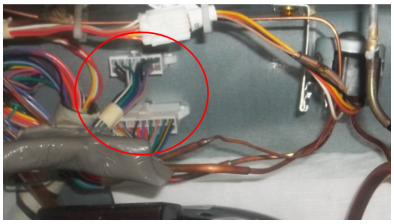
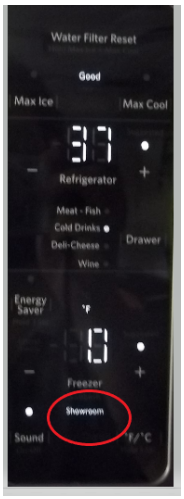
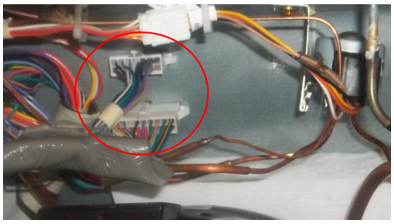
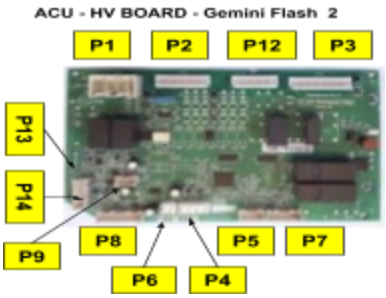
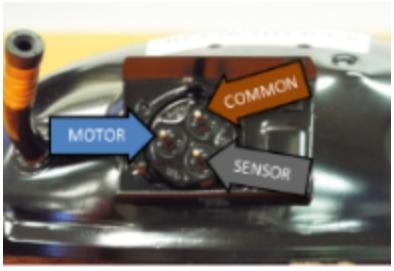
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

Symptoms	Possible Causes	Corrective Action
No operation	**No power to Appliance**  	Check circuit breaker and outlet for proper voltage, polarity and grounding.
	Power to the Appliance. No AC or DC power to boards. Board positions  Wifi boards under hinge caps Orion  A. 12.7 VDC Outputs B. 115 VAC Output to GF2 C. 115 VAC Supply	1. Check AC voltage to the Orion board *(in compressor area)* P1-1 to P1-2= 115 VAC P1-3 to P1-4= 115 VAC 2. If the UI's are not lit or are unresponsive, check for loose wiring connections and also check the DC voltage at the boards. The DC power is supplied by the *Orion* board. Please remember if NO voltage is found at boards, there could be an issue with the DC power supply being overloaded. This can be caused by a shorted component or bad board. 3. If there is no DC power to the *Orion* board, unplug the UI's one at a time and check for voltage after each one. Reset power to the unit to see if voltage changes. Orion (in compressor area): P16-1 to P16-8 =12vdc P16-2 to P16-7=12vdc P16-3 to P16-6=12vdc P16-4 to P16-5=12vdc HV board GF2 (remove panel on back of unit) P4-1 to P4-4 = 12.7 VDC P6-1 to P6-2 = 12.7 VDC

No operation (cont'd)	 Sprash TRITON(dispenser) 	Sparsh (UI on side of door) J2-4 to J2-1= 12.7 VDC Triton (Dispenser UI) J1-1 to J1-4 = 12.7 VDC
	Low AC voltage or Intermittent voltage 	1. Check the outlet for proper voltage, polarity and grounding. 2. Check connections going from Orion board to the cabinet. Loose connectors could cause this issue.

NO Cool, both FC and RC are room temp. Interior Lights working and UI's lit. NO fans or compressor running.	**Unit is in showroom mode** 	1. If the showroom light on the UI is lit, then the unit is in showroom mode. 2. To take the unit out of showroom mode press and hold °F/°C and DRAWER buttons on Sparsh UI at the same time for 3 seconds.
	Loose connections 	1. Run service tests on the unit to verify all functions work. 2. If all functions work, then try resetting the unit by unplugging for 2 mins. 3. If the unit works after reset, check all connections and monitor the unit. Ensure the connections going from Orion Board to the cabinet is secure. (i.e., the connectors are fully seated, no wire pins are backed out of the connector and no abrasions on wire insulation).

NO Cool and both RC and FC sections are room temp. Fans are running (condenser, RC or FC), NO compressor running.	**Check condenser fan, dirty condenser or blocked air vent on back of machine compartment cover.** 	If the condenser fan is not running, dirty condenser or improper air flow could cause the compressor to overheat. 1. Clean fan and condenser if needed. 2. Check condenser fan in test mode. Service Test #58. If the fan is not running check *HV board (GF2)* P8-7 to P8-8 = 12.7 VDC. DC CONDENSER FAN OUTPUT

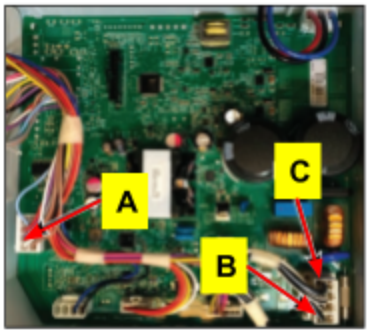
NO Cool and both RC and FC sections are room temp. Fans are running (condenser, RC or FC), NO compressor running. (cont'd)		3. If voltage is good, check fan wiring then replace the fan. If there is no voltage at *HV GF2* Board while activating fan in test mode check connections then replace *HV GF2* Board.
	Check Compressor Windings 	1. Check winding of compressor with Ohm meter. Sensor to Common Resistance: 16.5Ω (+/- 2.5Ω). Motor to Common Resistance: 9.6Ω (+/- 2.5Ω). 2. If readings are good then go to Check Orion board (see below) 3. If Ohm readings are open, shorted or out of range then replace the Compressor and Orion board.
	Check Orion Board **Note:** In order to protect the motor from failure the Orion Board has a software fuse once tripped the board must be replaced. A major sealed system leak will cause the fuse to trip.	**Note:** Always check the compressor windings first. Shorted winding may damage the *Orion* Board. See Check Compressor Windings Section. 1. Plug the power cord into a Watt meter and put the unit into test #38 Compressor Run Test and set for 100%. 2. If the compressor runs check for loose connection on the compressor causing intermittent operation. 3. If the compressor does not run,

NO Cool and both RC and FC sections are room temp. Fans are running (condenser, RC or FC), NO compressor running. (cont'd)

use the Linear Compressor (wisemotion) test inverter PN: *W11283559*. This is a special test inverter that runs the compressor constantly. If the compressor runs with a test inverter replace the *Orion* Board.

4. With new *Orion* board check wattage for possible sealed system leaks. Verify performance: check condenser is getting hot, evaporator frost patterns, etc. See Sealed System Section for appropriate wattage or if the compressor exhibits a start and stop run pattern.

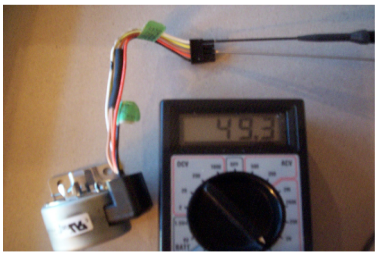
Orion Board



A. 12.7 VDC Outputs
B. 115 VAC Output to GF2
C. 115 VAC Supply

IF board or compressor is replaced then check following

Check RKV valve



1. Plug unit into Watt meter, initiate test 40. During position change you will see a 3-4 watt jump for 3-4 seconds.

2. If no change is observed, Ohm out RKV valve. Disconnect 5 pin connector at coil. Verify resistance between center pin and each of the other 4 pins. All RKV Valve pins should read 43-49 Ohms referenced to the center pin.

3. If Ohm readings are out of range then replace the RKV valve.

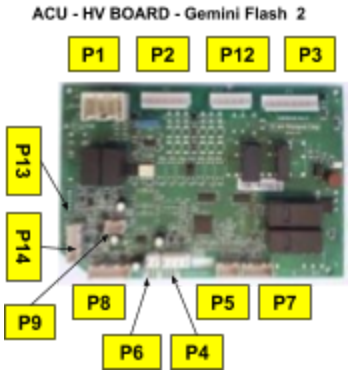
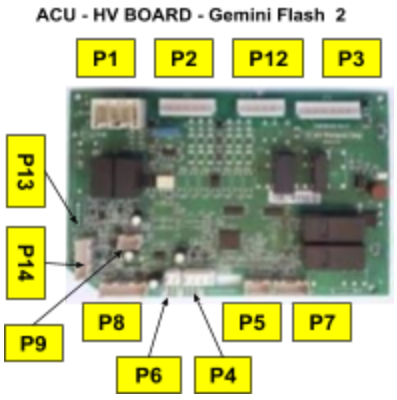
4. Check wiring and connections.

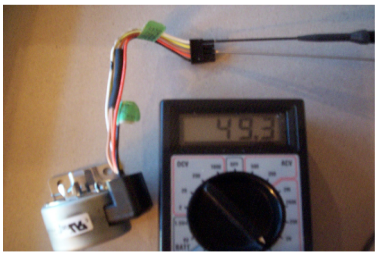
5. If RKV resistance is in range, check for frost patterns on both evaporators during the test to confirm the valve is changing position.

NO Cool and both RC and FC sections are room temp. Fans are running (condenser, RC or FC), NO compressor running. (cont'd)	**Check for Sealed System Leaks.** ***Note:*** *The Linear Compressor (Wisemotion) used on these models cannot be dosed with a dye and are oilless. The cooling system contains no oil. When tapping into the sealed system use dedicated gauges that have not been exposed to systems containing oil.* ***Note:*** *In order to protect the motor from failure the Orion Board has a software fuse once tripped the board must be replaced. The fuse may trip within 60 minutes of a major sealed system leak.*	1. Plug unit into Watt meter, perform test 38 and set for 100%. 2. If the compressor maintains 150-160 watts then the sealed system is performing in proper range. Visibly check frost patterns on Evaporators and heat at discharge of the compressor. 3. If the compressor drops below 90 watts and maintains this wattage then inspect for possible high side sealed system leaks. Note: Service Test Mode will time out and need to be reentered. Approximately 2.5 minutes. 4. To physically check for leaks verify visually by pressurizing the system with nitrogen and looking for bubbles externally with a soapy solution. 5. Compressor Run Patterns. The following conditions may only occur for the first 60 minutes of sealed system failure, before the *Orion* is disabled by fuse. The following run patterns are not required for these failures to be present and are listed to assist technicians during or after repair. A. Compressor runs briefly (≈15 seconds), then shut off. Compressor restarts between 2 ½ to 10 minutes later. The compressor runs another 15 seconds and shuts off again. This behavior will continue to repeat. Possible Cause: sealed system restriction B. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. Compressor restarts after 2 to 3 minutes. Possible Cause: high side leak. C. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. If Compressor restarts after 10 minutes look for a low side

NO Cool and both RC and FC sections are room temp. Fans are running (condenser, RC or FC), NO compressor running. (cont'd)		leak. This behavior will continue to repeat. Possible Cause: sealed system leak with no refrigerant charge remaining. Discharge line does not get hot.

No Cool in RC section (room temp). FC section temps are good.	**Check Compartment Temperature** ***Note:*** *Do not use an infrared gun. The surfaces of a refrigerator are highly reflective to IR light. When measuring with an IR non-contact device it is probable that you are measuring reflected temp and NOT surface temps.*	**IMPORTANT:** <u>DO NOT USE infrared temperature gun</u> 1. Verify temperature of contents in all compartments with a probe or thermometer. Do not measure air temp. Record this information before beginning service.
	Check Thermistors *Do not power down prior to performing these tests. If the unit has been powered down MIN, MAX and AVE temp data will be lost.* *Note: Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by placing the thermistor in ice water. Do not get electrical connection wet. The water will*	1. Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring at *HV-GF2 Board* or *Triton Board* for ice maker thermistors. Replace as necessary but check for loose connections first by pulling on wire connection. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd) 2. Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 Hours of all thermistors. Record all thermistor Temperatures for all compartments.

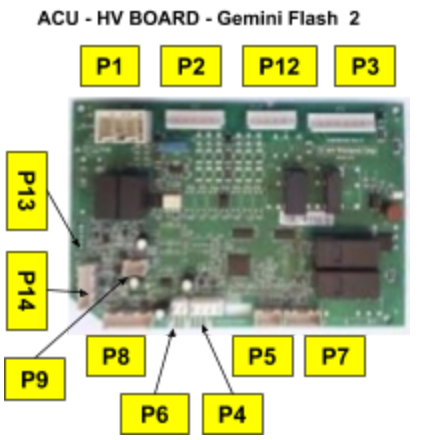
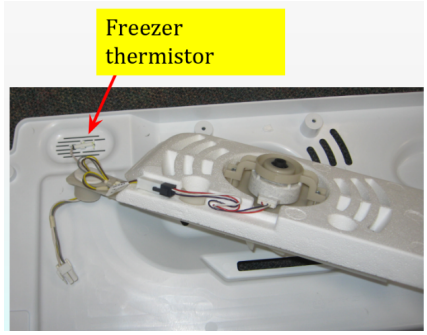
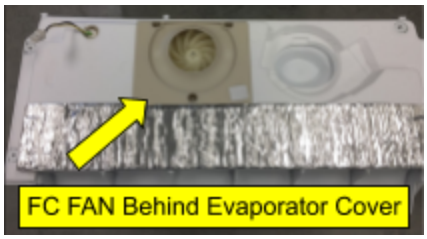
No Cool in RC section (room temp). FC section temps are good. (cont'd)	*be ≈ 32 F degrees and leave in for 10 mins and check.* *Sparsh UI Readings in Thermistor Test Mode:* 	MIN,MAX,AVE #23, #28, #33 - RC Therm #24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm
	Check RC Evaporator Fan  	1. Initiate test #57 *RC Fan test* to ensure fan operation. Display will show ON while in service test. 2. If fan is not running, verify voltage at fan motor and make sure there are NO loose connections. If voltage is not present, check voltage at *ACU - HV board (GF2),* P14-3 to P14-4 = 12.7 VDC, RC EVAP FAN OUTPUT 3. If the fan is not running and voltage is present at *ACU - HV (GF2)* Board and at fan motor connector, replace FAN. 4. If the fan is not running and no/low voltage at wiring or *ACU-HV(GF2)* Board. Replace the *ACU - HV(GF2)* board. Recheck fan operation.
	RC Evaporator not Defrosting. 	1. Remove crisper and deli drawers. Check RC Evap Cover for excessive frost build up on external surfaces. 2. Perform test 90 to verify RC defrost heater operation. Check with a watt meter, the heater draws 125 watts. 3.If no current (watts), check for loose wiring connections first in RC evap area, then check Resistance of Defrost Heater (100-111Ω). If out of range replace Defrost Heater.

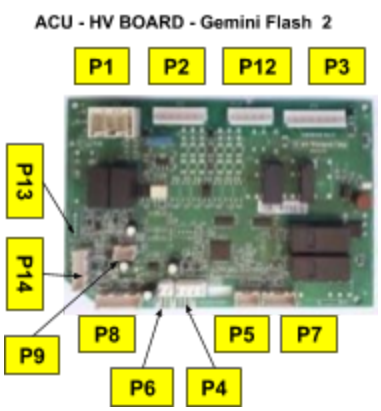
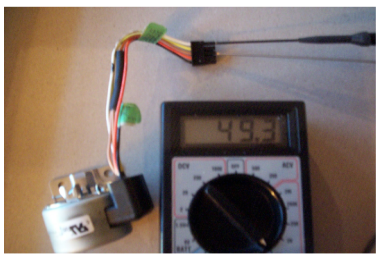
No Cool in RC section (room temp). FC section temps are good. (cont'd)	 *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	4. If no current (watts) present check *ACU - HV board(GF2)* P2-5 to P1-2 = 120VAC. If no voltage present during test #90 replace *ACU- HV(GF2)* Board. 5. Verify RC Evap thermistor is functional, Service Test #3. If the test shows OP (open) or SH (short) check the thermistor wiring at control and for loose connections. Replace as necessary. **NOTE:** If RC defrost thermistor is higher than 60F degrees the defrost will not start.
	Check RKV valve 	1. Plug unit into Watt meter, initiate test 40. During position change you will see a 3-4 watt jump for 3-4 seconds. 2. If no change is observed, Ohm out RKV valve. Disconnect 5 pin connector at coil. Verify resistance between center pin and each of the other 4 pins. All RKV Valve pins should read 43-49 Ohms referenced to the center pin. 3. If Ohm readings are out of range then replace the RVK. 4. Check wiring and connections. 5. If RKV resistance is in range, check for frost patterns on both evaporators during the test to confirm the valve is changing position.

No Cool in RC section (room temp). FC section temps are good. (cont'd)	**Check for Sealed System Leaks.** ***Note:*** *The Linear Compressor (Wisemotion) used on these models cannot be dosed with a dye and are oilless. The cooling system contains no oil. When tapping into the sealed system use dedicated gauges that have not been exposed to systems containing oil.* *Note: In order to protect the motor from failure the Orion Board has a software fuse once tripped the board must be replaced. The fuse may trip within 60 minutes of a major sealed system leak.*	1. Plug unit into Watt meter, perform test 38 and set for 100%. 2. If the compressor maintains 150-160 watts then the sealed system is performing in proper range. Visibly check frost patterns on Evaporators and heat at discharge of the compressor. 3. If the compressor drops below 90 watts and maintains this wattage then inspect for possible high side sealed system leaks. Note: Service Test Mode will time out and need to be reentered. Approximately 2.5 minutes. 4. To physically check for leaks verify visually by pressurizing the system with nitrogen and looking for bubbles externally with a soapy solution. 5. Compressor Run Patterns. The following conditions may only occur for the first 60 minutes of sealed system failure, before the *Orion* is disabled by fuse. The following run patterns are not required for these failures to be present and are listed to assist technicians during or after repair. A. Compressor runs briefly (≈15 seconds), then shuts off. Compressor restarts between 2 ½ to 10 minutes later. The compressor runs another 15 seconds and shuts off again. This behavior will continue to repeat. Possible Cause: sealed system restriction B. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. Compressor restarts after 2 to 3 minutes. Possible Cause: high side leak. C. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. If Compressor restarts after 10 minutes look for a low side

No Cool in RC section (room temp). FC section temps are good. (cont'd)		leak. This behavior will continue to repeat. Possible Cause: sealed system leak with no refrigerant charge remaining. Discharge line does not get hot.

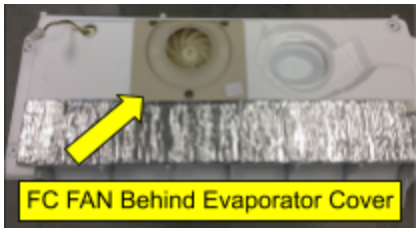
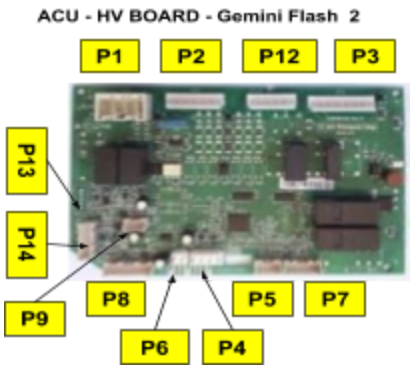
No Cool in FC section(room temp) but RC section temps are good.	**Check product temp** ***Note:*** *Do not use an Infrared Probe. The surfaces of a refrigerator are highly reflective to IR light. When measuring with an IR non-contact device it is probable that you are measuring reflected temp and NOT surface temps. Use a contact probe.*	**IMPORTANT:** <u>DO NOT USE Infrared temperature gun</u> Verify temp in the unit product temperature with a probe or thermometer. Use this information to find out how far off temp is before beginning service.
	Check Thermistors *Do not power down prior to performing these tests. If the unit has been powered down MIN, MAX and AVG temp data will be lost.* ***Note:*** *Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor resistance range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by placing the thermistor in ice water. Ice. Do not get electrical connection wet. The water should be 32 F degrees and leave in for 10 mins and check.*	Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring at control. Check for any loose wiring connections and then replace as necessary. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd) Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 Hours of all thermistors. Record all thermistor Temperatures for all compartments. MIN,MAX,AVE #23, #28, #33 - RC Therm #24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm

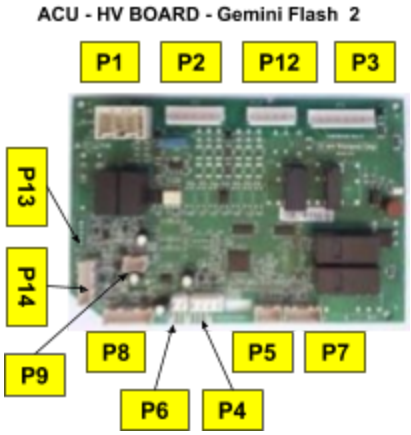
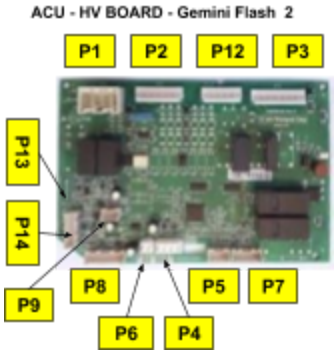
No Cool in FC section(room temp) but RC section temps are good (cont'd)		
	Check FC Evaporator Fan   	1. Initiate test 56 *FC Fan test* to ensure fan operation. Display will show ON while in service test. 2. If fan is not running, verify voltage at fan motor. Check wiring connection at both board and FC fan for being loose. HV board(GF2) P14-1 to P14-2 ≈ 12.7 VDC
	FC Evaporator not Defrosting	1. Remove the freezer basket to check the evaporator for excessive frost build up. 2. Perform test 89 to verify FC defrost heater operation. HV board (GF2) P2-7 to P1-2 = 120VAC. Heater approximately 29 ohms.

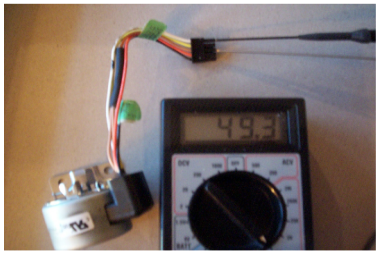
No Cool in FC section(room temp) but RC section temps are good (cont'd)		3. Also verify control, wiring connections and thermistor are good. **NOTE:** If FC defrost thermistor is higher than 60F degrees the defrost will not start.
	Check RKV valve 	1. Plug unit into Watt meter, initiate test 40. During position change you will see a 3-4 watt jump for 3-4 seconds. 2. If no change is observed, Ohm out RKV valve. Disconnect 5 pin connector at coil. Verify resistance between center pin and each of the other 4 pins. All RKV Valve pins should read 43-49 Ohms referenced to the center pin. 3. If Ohm readings are out of range then replace the RVK. 4. Check wiring and connections. 5. If RKV resistance is in range, check for frost patterns on both evaporators during the test to confirm the valve is changing position.
	Check for Sealed System Leaks. ***Note:*** *The Linear Compressor (Wisemotion) used on these models cannot be dosed with a dye and are oilless. The cooling system contains no oil. When tapping into*	1. Plug unit into Watt meter, perform test 38 and set for 100%. 2. If the compressor maintains 150-160 watts then the sealed system is performing in proper range. Visibly check frost patterns on Evaporators and heat at discharge of the compressor.

No Cool in FC section(room temp) but RC section temps are good (cont'd)	*the sealed system use dedicated gauges that have not been exposed to systems containing oil.* ***Note:*** *In order to protect the motor from failure the Orion Board has a software fuse once tripped the board must be replaced. The fuse may trip within 60 minutes of a major sealed system leak.*	3. If the compressor drops below 90 watts and maintains this wattage then inspect for possible high side sealed system leaks. Note: Service Test Mode will time out and need to be reentered. Approximately 2.5 minutes. 4. To physically check for leaks verify visually by pressurizing the system with nitrogen and looking for bubbles externally with a soapy solution. 5. Compressor Run Patterns. The following conditions may only occur for the first 60 minutes of sealed system failure, before the *Orion* is disabled by fuse. The following run patterns are not required for these failures to be present and are listed to assist technicians during or after repair. A. Compressor runs briefly (≈15 seconds), then shut off. Compressor restarts between 2 ½ to 10 minutes later. The compressor runs another 15 seconds and shuts off again. This behavior will continue to repeat. Possible Cause: sealed system restriction B. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. Compressor restarts after 2 to 3 minutes. Possible Cause: high side leak. C. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. If Compressor restarts after 10 minutes look for a low side leak. This behavior will continue to repeat. Possible Cause: sealed system leak with no refrigerant charge remaining. Discharge line does not get hot.

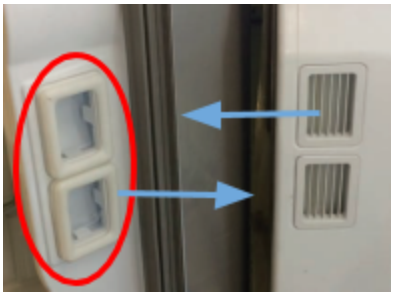
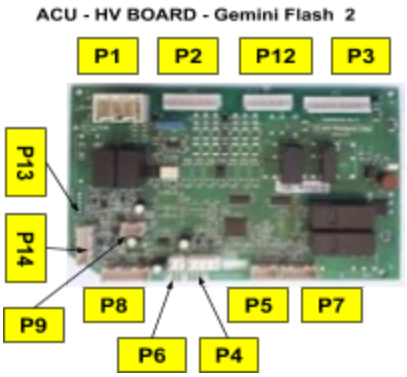
Low or Partial cooling in either or both sections(RC or FC)	**Check Compartment Loading**	Check for proper loading of compartments. Ensure that items are not blocking airflow entries or returns. Ensure items are not preventing doors from closing.
	Check door RC and FC door gasket and machine compartment cover	Inspect door gaskets for any abnormalities. Also check the machine compartment cover to make sure it is not damaged. If found, rework or replace the gasket or cover.
	Check Product Temp ***Note:*** *Do not use an Infrared scanner. The surfaces of a refrigerator are highly reflective to IR light. When measuring with an IR non-contact device it is probable that you are measuring reflected temp and NOT surface temps*	**IMPORTANT:** DO NOT USE Infrared temperature gun Verify temp in the unit product temperature with a probe or thermometer. Use this information to find out how far off temp is before beginning service.
	Check Thermistors *Do not power down prior to performing these tests. If the unit has been powered down MIN, MAX and AVE temp data will be lost.* ***Note:*** *Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp*	Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring at control. Check for any loose wiring connections and then replace as necessary. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd)

Low or Partial cooling in either or both sections(RC or FC) (cont'd)	*2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by placing the thermistor in ice water. Ice. Do not get electrical connection wet. The water should be 32 F degrees and leave in for 10 mins and check.* 	Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 Hours of all thermistors. Record all thermistor Temperatures for all compartments. #23, #28, #33 - RC Therm #24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm
	Check Evaporator Fans  	Initiate service tests 56 and 57 to ensure proper operation of evap fan motors. If no operation, verify voltage at fan motors also check for any loose wiring connections. Test 56 FC Fan *test* to ensure fan operation. HV board(GF2) P14-1 to P14-2 = 12.7 VDC Test 57 *RC Fan test* to ensure fan operation. HV board(GF2) P14-3 to P14-4 = 12.7 VDC RC EVAP FAN OUTPUT

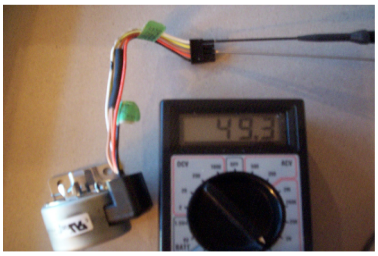
Low or Partial cooling in either or both sections(RC or FC) (cont'd)	**Check for Defrost Issue in RC or FC Sections** **NOTE:** If either defrost thermistor is higher than 60F degrees the defrost will not start for that section  	Check both sections for excessive frosting patterns. 1. Perform test 89 (FC Heater) for defrost operation. If not heating up ohm out Heater (29-32 Ohms) and check wiring connections and verify the control is supplying voltage. Replace out of range components. FC Defrost Heater Terminals: HV board(GF2) P2-7 to P1-2 = 120VAC. 435 Watt +/- 5% 2. Perform test 90 (RC Heater) for defrost operation. If not heating up ohm out Heater (100-111Ω) and check wiring connections and verify the control is supplying voltage. Replace out of range components. RC Defrost Heater Terminals: HV board(GF2) P2-5 to P1-2=120VAC, 125 watt +/- 5%
	Check condenser fan, dirty condenser or blocked air vent on back of machine compartment cover.  	If the condenser fan is not running, dirty condenser or improper air flow could cause the compressor to overheat. 1. Clean fan and condenser if needed. 2. Check condenser fan in test mode. Service Test #58. If the fan is not running check *HV board (GF2)* P8-7 to P8-8 = 12.7 VDC. DC CONDENSER FAN OUTPUT 3. If voltage is good, check fan wiring then replace the fan. If there is no voltage at *HV GF2 Board* while activating fan in test mode check connections then replace *HV GF2 Board*.

Low or Partial cooling in either or both sections(RC or FC) (cont'd)		
	Check RKV valve 	1. Plug unit into Watt meter, initiate test 40. During position change you will see a 3-4 watt jump for 3-4 seconds. 2. If no change is observed, Ohm out RKV valve. Disconnect 5 pin connector at coil. Verify resistance between center pin and each of the other 4 pins. All RKV Valve pins should read 43-49 Ohms referenced to the center pin. 3. If Ohm readings are out of range then replace the RVK. 4. Check wiring and connections. 5. If RKV resistance is in range, check for frost patterns on both evaporators during the test to confirm the valve is changing position.
	Check for Sealed System Leaks. ***Note:*** *The Linear Compressor (Wisemotion) used on these models cannot be dosed with a dye and are oilless. The cooling system contains no oil. When tapping into the sealed system use dedicated gauges that have not been exposed to systems containing oil.*	1. Plug unit into Watt meter, perform test 38 and set for 100%. 2. If the compressor maintains 150-160 watts then the sealed system is performing in proper range. Visibly check frost patterns on Evaporators and heat at discharge of the compressor. 3. If the compressor drops below 90 watts and maintains this wattage then inspect for possible high side sealed system leaks. Note: Service

Low or Partial cooling in either or both sections(RC or FC) **(cont'd)**	***Note:*** *In order to protect the motor from failure the Orion Board has a software fuse once tripped the board must be replaced. The fuse may trip within 60 minutes of a major sealed system leak.*	Test Mode will time out and need to be reentered. Approximately 2.5 minutes. 4. To physically check for leaks verify visually by pressurizing the system with nitrogen and looking for bubbles externally with a soapy solution. 5. Compressor Run Patterns. The following conditions may only occur for the first 60 minutes of sealed system failure, before the *Orion* is disabled by fuse. The following run patterns are not required for these failures to be present and are listed to assist technicians during or after repair. A. Compressor runs briefly (≈15 seconds), then shut off. Compressor restarts between 2 ½ to 10 minutes later. The compressor runs another 15 seconds and shuts off again. This behavior will continue to repeat. Possible Cause: sealed system restriction B. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. Compressor restarts after 2 to 3 minutes. Possible Cause: high side leak. C. Compressor Runs for a Short Period (≈15 - 30 seconds), then shuts off. If Compressor restarts after 10 minutes look for a low side leak. This behavior will continue to repeat. Possible Cause: sealed system leak with no refrigerant charge remaining. Discharge line does not get hot.

RC section freezing	**Check gasket on left door to IM ducts** 	There are air ducts for the IM bin on the side of the door. Check these gaskets to make sure there are NO gaps or leaking. If gaps are found try to rework the gasket to get a better seal. If still gaps are still present then replace gasket
	Check ice bin door for air leakage 	Check the ice bin door to see if the seal is closing on the door liner. If there are gaps then rework the gasket to remove gaps. If the seal still does not seat properly, then replace the gasket.
	Check Pantry Baffle for Proper Operation 	Run test 42 to check pantry damper operation. If there is no operation then check voltage to the damper. Service Test - 42 Main Pantry Air Baffle State • When entering service test, the damper continuously turns, showing the state in the numeric display. • Possible position readings: 00 – Air baffle in open position 02 – Air baffle in closed position HV board(GF2) P12-6 to P1-2 = 115VAC AIR BAFFLE OUTPUT.

RC section freezing (cont'd)	**Check Thermistors** *Do not power down prior to performing these tests. If the unit has been powered down MIN, MAX and AVE temp data will be lost.* ***Note:*** *Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by placing the thermistor in ice water. Ice. Do not get electrical connection wet. The water should be 32 F degrees and leave in for 10 mins and check.* 	Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring at control. Check for any loose wiring connections and then replace as necessary. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd) Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 Hours of all thermistors. Record all thermistor Temperatures for all compartments. MIN,MAX,AVE #23, #28, #33 - RC Therm #24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm
	RC Evap cover Gasket	Food in the drawer and bottom shelf may freeze. Inspect RC evap cover gasket for proper installation. Rework gasket if needed. Replace gasket if defective.

RC section freezing (cont'd)	**Check RKV valve** 	1. Plug unit into Watt meter, initiate test 40. During position change you will see a 3-4 watt jump for 3-4 seconds. 2. If no change is observed, Ohm out RKV valve. Disconnect 5 pin connector at coil. Verify resistance between center pin and each of the other 4 pins. All RKV Valve pins should read 43-49 Ohms referenced to the center pin. 3. If Ohm readings are out of range then replace the RVK. 4. Check wiring and connections. 5. If RKV resistance is in range, check for frost patterns on both evaporators during the test to confirm the valve is changing position.
	No Issue Found after Running Tests	If after running tests no failures are found, unplug the appliance for two minutes. Allow the refrigerator to run and monitor.

ICE MAKER ISSUES

NOTE: If RC or FC temps are too warm the Ice Maker will not produce ice or may produce low or intermittent ice. The unit will attempt to cool these sections before making ice. The problem may not be with the IM system, check RC and FC Temps and check recorded high, low and average thermistor temps in test mode. Fix these issues first.

NOTE: In Door Ice Makers Ice Rate - 147-252 cubes in 24hrs

⚠ DANGER

Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

⚠ WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

- **Verify the controls are in the off position so that the appliance does not start when energized.**
- **Allow enough space to perform the voltage measurements without obstructions.**
- **Keep other people a safe distance away from the appliance to prevent potential injury.**
- **Always use the proper testing equipment.**
- **After voltage measurements, always disconnect power before servicing.**

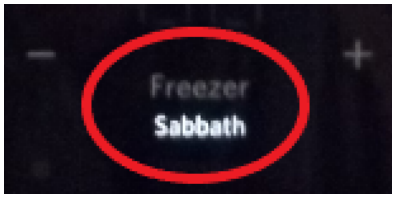
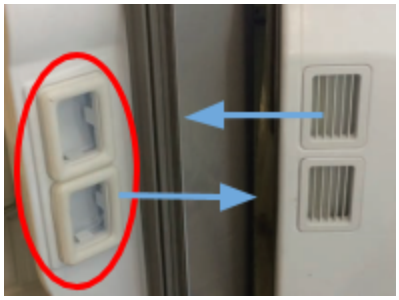
IMPORTANT: Electrostatic Discharge (ESD) Sensitive Electronics

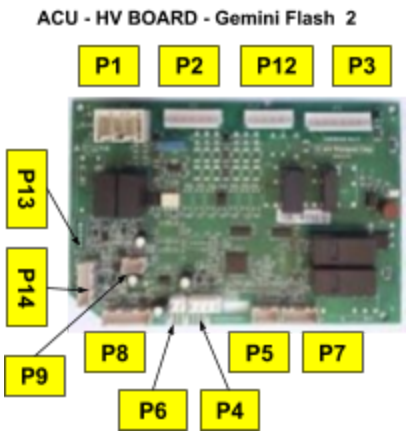
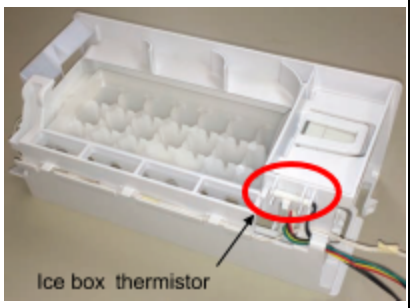
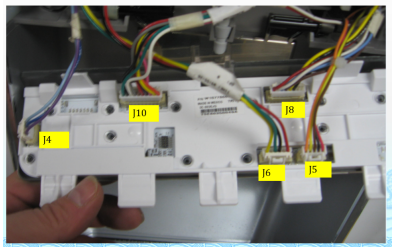
ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

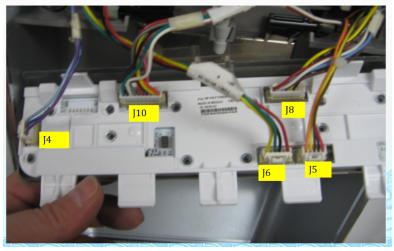
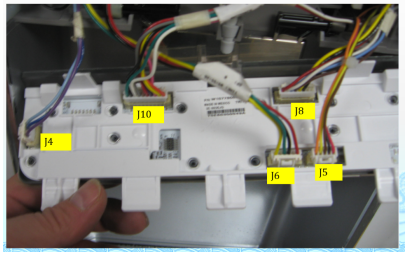
- Use an antistatic wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

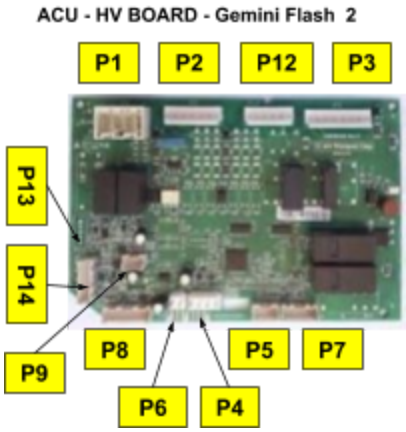
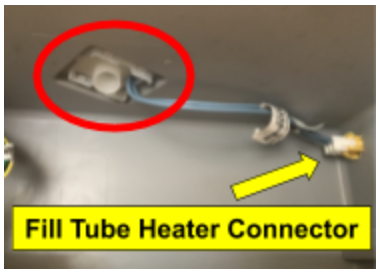
  -OR-

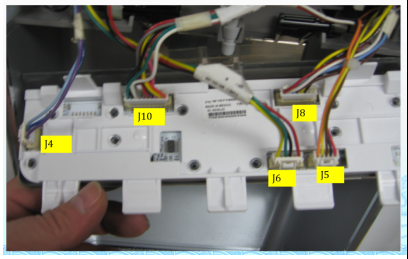
  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

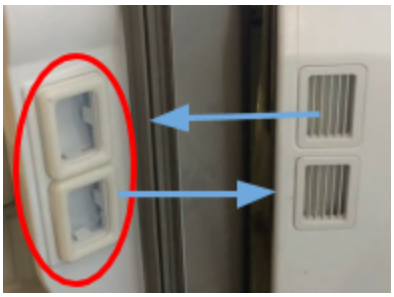
Symptoms	Possible Causes	Corrective Action
Door Ice maker: No ice, No water in tray	**Ice maker turned off**	Turn IM on by switch on the IM
	Verify unit is not in Showroom or Sabbath mode 	1. If the Showroom light on the UI is lit then the unit is in showroom mode. To take the unit out of showroom mode press and hold °F/°C and DRAWER at the same time for 3 seconds. 2. Enter and exit Sabbath mode by pressing and holding °F/°C and SOUND at the same time for 3 seconds. **NOTE:** Display will not show countdown when exiting.
	Check water supply	1. Verify water supply is turned on. 2.Dispense water from the water dispenser. 3.Ensure customers have proper water pressure. (20 -120psi)
	Check gasket on left door to IM ducts 	1.There are air ducts for the IM Compartment on the side of the door. 2.Check these gaskets to make sure there are NO gaps. 3.If gaps are found try to reposition the gasket to get a better seal. 4.If the gasket still has gaps then replace gasket
	Check ice box fan	Run test 59 to verify IM fan operation. 1. When entering the service test, the Ice Box Fan turns on. The display shows “ON.” You should feel air coming out of the top vent that feeds the left hand door. 2. If no air movement is felt verify voltage at fan motor.

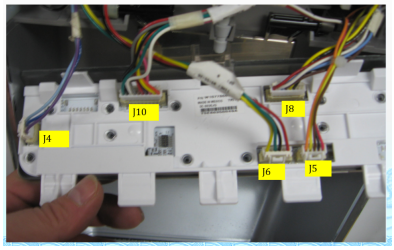
Door Ice maker: No ice, No water in tray (cont'd)		3. If voltage is present, check for loose connections first then replace fan motor HV board(GF2) P9-2 to P9-3 = 12.7 VDC ICE BOX FAN OUTPUT
	Check Temps in Refrigertor and Freezer Thermistors	If the freezer is too warm the IM will not cycle by itself. 1. Run thermistor test 02. 2. If temps are not right then go to symptom "Low or partial cooling in FC section. RC temps are good"
	Check Ice box thermistor  TRITON(dispenser)  *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Service Test - 14 Door Ice Box Temperature SH indicates shorted thermistor OP indicates open thermistor. 1. If the thermistor is out of range, check connections and check ohm reading at Dispenser board. 2. If resistance is out of range at board then check wiring. 3. If wiring is good then replace IM. 4.If wire is open or shorted then the door must be replaced. (Harness foamed in door liner) Triton(Dispenser board) J10-1 to J10-2

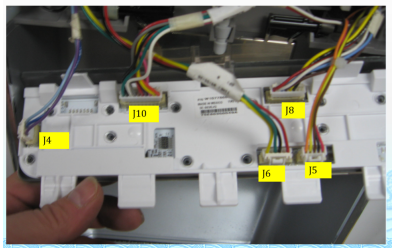
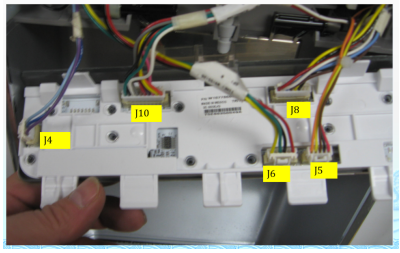
Door Ice maker: No ice, No water in tray (cont'd)	**Check Ice Maker Tray Thermistor** TRITON(dispenser)  	Run test 16, Read Ice Maker Tray Temperature. SH indicates shorted thermistor OP indicates open thermistor. 1. IF thermistor checks open, Check connections at Dispenser board. Triton (Dispenser board) J10-3 to J10-4
	Check Ice maker for proper cycling TRITON(dispenser)  	Run test 120, The display shall show the following transitions as they occur. "00" – Stopped "01" – Moving Counter - Clockwise to Ice Break Position "02" – Moving Clockwise to End of Harvest Location **Note:** If during Step 2 the Ice Bin Is Full it will jump to Step 4. If Timeout Occurs (60 seconds) you must Execute Step 4. "03" – Reached End of Harvest Location "04" – Moving Counterclockwise Back To Homing Location Note: During Step 4 If Timeout Occurs (60 seconds) End Test. The display shall show the error codes following the execution of the test. "PA" – All Steps Successfully Passed "bF" – Ice Bin Is Full "E1" – Cannot Find Ice Break Position "E2" – Cannot Find End of Harvest

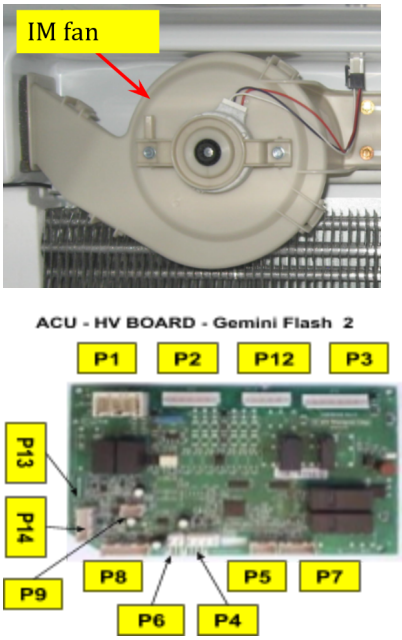
Door Ice maker: No ice, No water in tray (cont'd)		Location "E3" – Cannot Find Home "E4" – Multiple Failures. If the ice maker DOES NOT cycle then check for voltage going to the IM. Triton(Dispenser board) J10-9 to 10-10, = 12.7 VDC If voltage is present and IM did not move then Check connections to IM and if good then replace the Ice Maker.
	Ice maker door fill test 	You must Run test 96 dispenser test in order to activate test 97 Ice maker fill test. 1. When entering the service test, the Door Ice Maker Water Valve turns on for 5-7 seconds. 2. If water does not enter the tray then check the fill tube for blockages and check for proper voltage to the water valve. HV board(GF2) P3-3 to P1-2 =120vac Door ice maker water valve
	Check for Frozen Fill Tube 	Service Test - 66 Door Ice Maker Fill Tube Heater Test 1. When entering the service test, the Door Ice Maker Fill Tube Heater turns on. The display shows "ON." You should have 12.7 VDC 2. Check the heater on the fill tube for proper resistance and voltage, also look for any broken wiring (see Technical Service Pointer #:W11406716) Resistance reading is approximately 65 ohms.

Door Ice maker: No ice, No water in tray (cont'd)	TRITON(dispenser)  	Triton (Dispenser board) J8-3 to J8-4 FILL TUBE HEATER, PULSED = 0 - 12.7 VDC (MAXIMUM)
	Check Filter	Remove filter and check flow rate of water and Ice dispenser

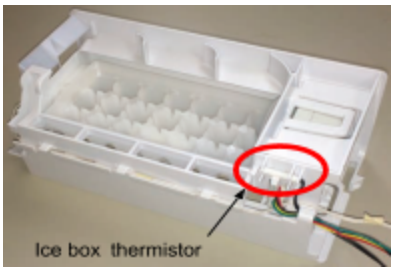
Door Ice maker: No Ice, Water in Tray	**Ice maker turned off** 	Turn IM on at IM
	Check Ice bin switch 	Service Test - 79 Ice Bin Switch State "00" identifies bin missing "01" identifies bin present
	Check gasket on left door to IM ducts 	1. There are air ducts for the IM Compartment on the side of the door. 2. Check these gaskets to make sure there are NO gaps. 3. If gaps are found try to reposition the gasket to get a better seal. 4. If the Gasket still has gaps then replace gasket
	Check Temps in Freezer and Fresh Food	1. If the freezer or RC temps are too warm the IM will not cycle by itself. (Go to Cooling section)

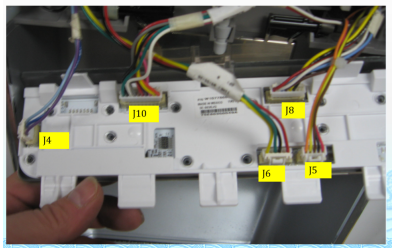
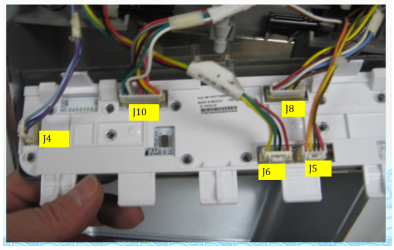
Door Ice maker: No Ice, Water in Tray (cont'd)	**Note:** When the unit is actively making ice the temps will be driven lower, this is normal operation. For example -17F freezer temp and -11F Ice box temps are possible even if the FC is set to 0F.	2. If the freezer temp is off by more than 10F degrees from set temp in test mode then look for cooling issues. (Go to Cooling section) 3. If Temps are in range proceed to next section
	Check Ice box thermistor TRITON(dispenser)  *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Service Test - 14 Door Ice Box Temperature SH indicates "shorted" thermistor OP indicates "open" thermistor. 1. If the thermistor is out of range, check connections for being loose and check resistance reading at Triton board. 2. If resistance is out of range atboard then check wiring. 3. If wiring is good then replace IM. 4. If the wire is open or shorted then the door must be replaced. (Harness foamed in door liner) Triton(Dispenser board) J10-1 to J10-2
	Check Ice Maker Tray Thermistor 	Run test 16 - Read Ice Maker Tray Temperature. SH indicates "shorted" thermistor OP indicates "open" thermistor 1. If the thermistor is out of range, check connections for being loose and check resistance reading at Triton board. 2. If the thermistor resistance is out of range at board then check wiring, If wiring is good, then replace IM.

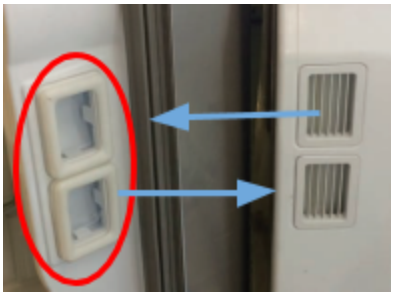
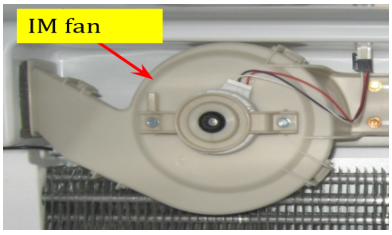
Door Ice maker: No Ice, Water in Tray (cont'd)	TRITON(dispenser)  *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Triton (Dispenser board) J10-3 to J10-4
	Check Ice maker for proper cycling TRITON(dispenser)  	Run test 120, The display shall show the following transitions as they occur. "00" – Stopped "01" – Moving Counter - Clockwise to Ice Break Position "02" – Moving Clockwise to End of Harvest Location Note: If during Step 2 the Ice Bin Is Full it will jump to Step 4. If Timeout Occurs (60 seconds) you must Execute Step 4. "03" – Reached End of Harvest Location "04" – Moving Counterclockwise Back To Homing Location **Note:** During Step 4 If Timeout Occurs (60 seconds) End Test. The display shall show the error codes following the execution of the test. "PA" – All Steps Successfully Passed "bF" – Ice Bin Is Full "E1" – Cannot Find Ice Break Position "E2" – Cannot Find End of Harvest Location "E3" – Cannot Find Home "E4" – Multiple Failures.

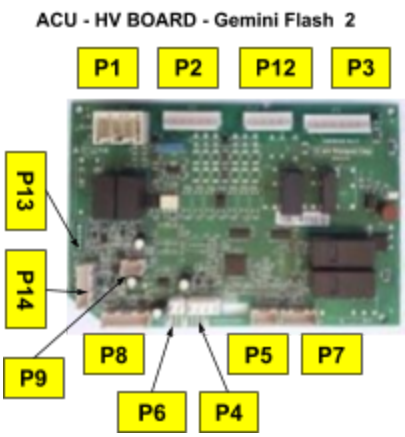
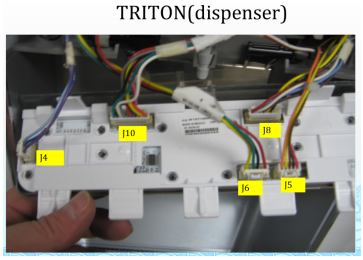
Door Ice maker: No Ice, Water in Tray (cont'd)		If the ice maker DOES NOT cycle then check for voltage going to the IM. Triton(Dispenser board) J10-9 to 10-10, = 12.7 VDC If voltage is present and IM did not move then Check connections to IM and if good then replace the Ice Maker.
	Check ice box fan 	Run test 59 to verify IM fan operation. 1. When entering the service test, the Ice Box Fan turns on. The display shows "ON." You should feel air coming out of the top vent that feeds the left hand door. 2. If no air movement is felt, check for loose wiring connections and verify voltage at fan motor. 3. Check for frosting, blocked vents 4. If voltage is present and no blocked vents are found, replace the fan motor. HV board(GF2) P9-2 to P9-3 = 12.7 VDC ICE BOX FAN OUTPUT

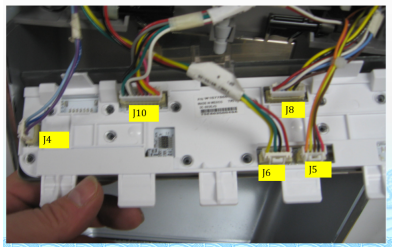
Door Ice maker: Slow ice production	**Check Ice bin switch** 	Service Test - 79 Ice Bin Switch State "00" Identifies bin missing "01" identifies bin present Ice rate: 147-252 cubes in 24hrs
	Check temps in Freezer and Fresh food and thermistors *Do not power down prior to performing these tests. If the unit has been powered down MIN,*	If the freezer or RC temps are too warm the IM will not cycle by itself. If the freezer temp is warmer than 10F degrees from set temp in test mode then look for cooling issues.

Door Ice maker: Slow ice production (cont'd)	*MAX and AVE temp data will be lost.* ***Note:*** *Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by placing the thermistor in ice water. Do not get electrical connection wet. The water should be 32 F degrees and leave in for 10 mins and check.* 	**Note:** When the unit is actively making ice the temps will be driven lower, this is normal operation. For example -17F freezer temp and -11F Ice box temps are possible even if the FC is set to 0F. If the thermistor is bad on the Ice maker, replace the Ice maker. Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring connections and check at control. Replace as necessary. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd) Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 Hours of all thermistors. Record all thermistor Temperatures for all compartments. MIN,MAX,AVE #23, #28, #33 - RC Therm #24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm
	Check Ice box thermistor 	Service Test - 14 Door Ice Box Temperature SH indicates "shorted" thermistor OP indicates "open" thermistor. 1.If the thermistor is out of range, check for loose wiring connections and check resistance reading at

Door Ice maker: Slow ice production (cont'd)	TRITON(dispenser)  *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Triton board. 2. If resistance is out of range at board then check wiring. 3. If wiring is good then replace IM. 4.If wire is open or shorted then the door must be replaced. (Harness foamed in door liner) Triton (Dispenser board) J10-1 to J10-2
	Check Ice Maker Tray Thermistor TRITON(dispenser)  *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Run test 16 - Read Ice Maker Tray Temperature. SH indicates "shorted" thermistor OP indicates "open" thermistor 1. If the thermistor resistance is out of range, check connections and check resistance reading at Triton board. 2. If the thermistor resistance is out of range at board then check wiring. If wiring is good, then replace IM. Triton (Dispenser board) J10-3 to J10-4

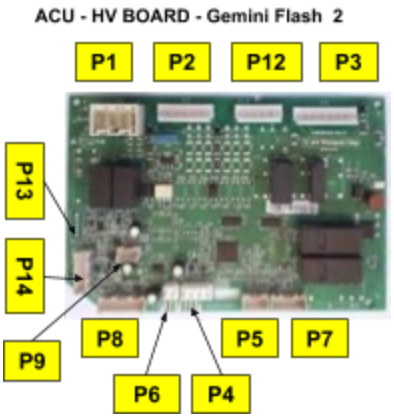
Door Ice maker: Slow ice production (cont'd)	**Check ice quality in bin** **Ice chute gasket** 	Check for ice clumping 1. Make sure the fill tube is in the proper position over the tray and not splashing or spraying outside of the tray while filling. 2. Check IM door seals. 3. Check Ice Chute Door Seals 4. Check Vent door seals (see next section)
	Check gasket on left door to IM ducts 	1.There are air ducts for the IM Compartment on the side of the door. 2.Check these gaskets to make sure there are NO gaps. 3.If gaps are found try to reposition the gasket to get a better seal. 4.If the Gasket still has gaps then replace gasket
	Check ice box fan 	Run test 59 to verify IM fan operation. 1. When entering the service test, the Ice Box Fan turns on. The display shows "ON." You should feel air coming out of the top vent that feeds the left hand door. 2. If no air movement is felt, check for loose wiring connections and verify voltage at fan motor. 3. Check for frosting, blocked vents. 4. If voltage is present and no blocked vents are found, replace

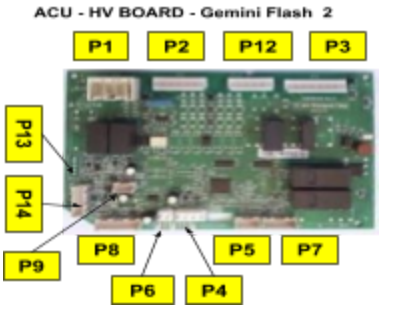
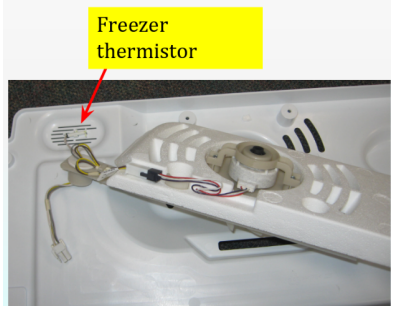
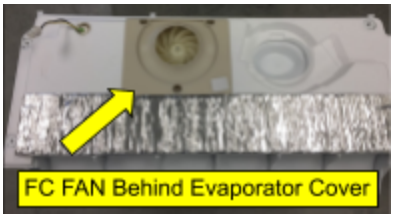
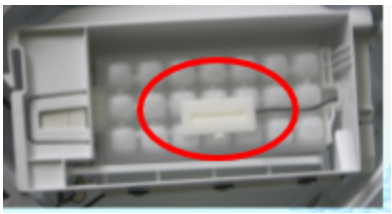
Door Ice maker: Slow ice production (cont'd)		the fan motor. HV board(GF2) P9-2 to P9-3 = 12.7 VDC ICE BOX FAN OUTPUT
	Check Ice maker for Proper Cycling 	Run test 120, The display shall show the following transitions as they occur. "00" – Stopped "01" – Moving Counter - Clockwise to Ice Break Position "02" – Moving Clockwise to End of Harvest Location **Note:** If during Step 2 the Ice Bin Is Full it will jump to Step 4. If Timeout Occurs (60 seconds) you must Execute Step 4. "03" – Reached End of Harvest Location "04" – Moving Counterclockwise Back To Homing Location Note: During Step 4 If Timeout Occurs (60 seconds) End Test. The display shall show the error codes following the execution of the test. "PA" – All Steps Successfully Passed "bF" – Ice Bin Is Full "E1" – Cannot Find Ice Break Position "E2" – Cannot Find End of Harvest Location "E3" – Cannot Find Home "E4" – Multiple Failures. If the ice maker DOES NOT cycle then check for voltage going to the IM.

Door Ice maker: Slow ice production (cont'd)		Triton(Dispenser board) J10-9 to 10-10, = 12.7 VDC If voltage is present and IM did not move then Check connections to IM and if good then replace the Ice Maker.
	Check for loose wiring connections on Dispenser board TRITON(dispenser)  	Recheck all the wiring at the dispenser board on front of the door. This is the board that runs the Ice maker in the door.

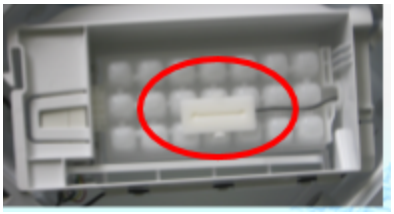
Freezer IM: slow ice production	**Check temps in Refrigertor and freezer thermistors** *Do not power down prior to performing these tests. If the unit has been powered down MIN, MAX and AVE temp data will be lost.* ***Note:** Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by*	If the freezer is too warm the IM will not cycle by itself. Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring connections at control. Replace as necessary. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd) Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 hours of all thermistors. Record all thermistor Temperatures for all compartments. #23, #28, #33 - RC Therm

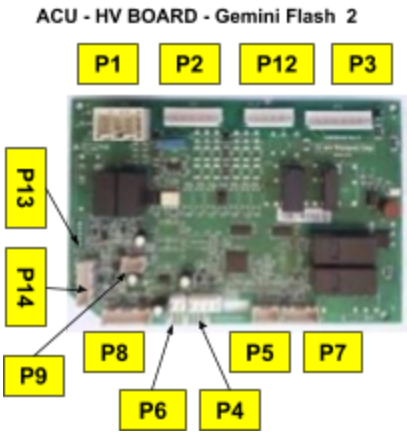
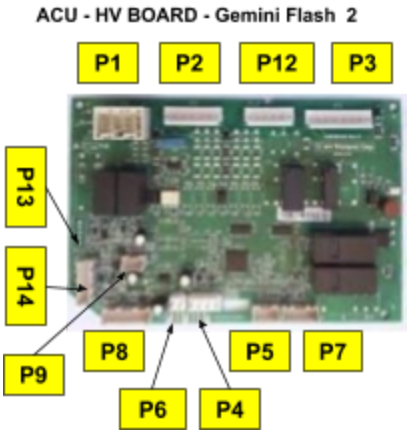
Freezer IM: slow ice production (cont'd)	*placing the thermistor in ice water. Do not get electrical connection wet. The water should be 32 F degrees and leave in for 10 mins and check.* 	#24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm
	Check FC Ice maker for proper cycling	Run test 121, Freezer IM test. The display shall show the following transitions as they occur. "00" – Stopped "01" – Moving Counter - Clockwise to Ice Break Position "02" – Moving Clockwise to End of Harvest Location Note: If during Step 2 the Ice Bin Is Full it will jump to Step 4. If Timeout Occurs (60 seconds) you must Execute Step 4. "03" – Reached End of Harvest Location "04" – Moving Counterclockwise Back To Homing Location **Note:** During Step 4 If Timeout Occurs (60 seconds) End Test. The display shall show the error codes following the execution of the test. "PA" – All Steps Successfully Passed "bF" – Ice Bin Is Full "E1" – Cannot Find Ice Break Position "E2" – Cannot Find End of Harvest Location "E3" – Cannot Find Home "E4" – Multiple Failures. If the ice maker DOES NOT cycle then check for voltage going to the

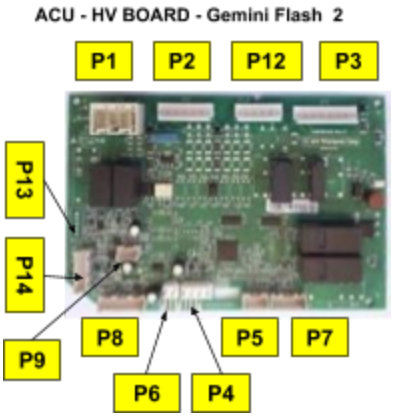
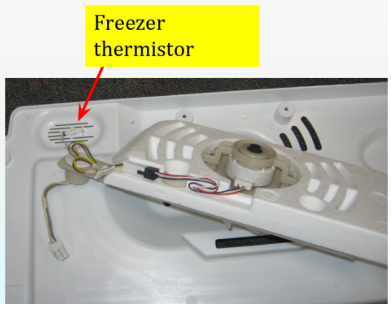
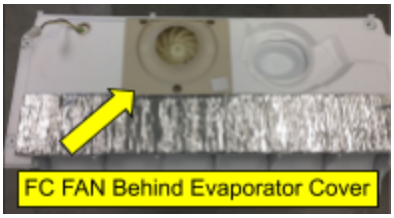
Freezer IM: slow ice production (cont'd)		IM. If voltage is present and IM did not move then Check connections to IM and if good then replace the Ice Maker. HV board(GF2) P7-5 to P7-6= 12.7 VDC
	Check for RC or FC evap not defrosting  	If either compartment is not defrosting this will affect the Ice maker. 1. Remove the crisper and deli drawer and look at the evaporator for thick frost. 2. For the FC section you will have to remove the baskets to see FC evap. 3. If either section is not defrosting please check board, thermistor, heater and connections. 4. Check both sections for excessive frosting patterns. Perform tests 89 and 90 for defrost heaters. A. Test 89 to verify FC defrost heater operation. HV board (GF2) P2-7 to P1-2 should be 120VAC. Heater approximately 29 ohms, 425 watts B. Test 90 to verify RC defrost heater operation. HV board(GF2) P2-5 to P1-2 120VAC, 125 watt **NOTE:** If either defrost thermistor is higher than 60F the defrost will not start for that section

Freezer IM: slow ice production (cont'd)	**Check FC Evaporator Fan**   	1. Initiate test 56 *FC Fan test* to ensure fan operation. Display will show ON while in service test. 2. If fan is not running, verify there are NO loose connections and check voltage at fan motor. 3. If the fan does not work, then check for voltage at the FC Fan. 4. If the fan does not have voltage then check wiring and wiring connections and check voltage at the HV board(GF2). 5. If voltage is missing at the HV board (GF2) then replace the board. HV board(GF2) P14-1 to P14-2 ≈ 12.7 VDC
	Check FC Ice Maker Tray Thermistor  *Thermistor Resistance Range:* *Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Run test 17 - Read FC Ice Maker Tray Temperature. SH indicates "shorted" thermistor OP indicates "open" thermistor 1. If the thermistor resistance is out of range, check connections and check resistance reading at board. 2. IF the thermistor resistance is out of range at board then check wiring, If wiring is good, then replace IM. HV board(GF2 P7-1 to P7-2
	Check wiring connection	Check for loose connections or damage to the harness.

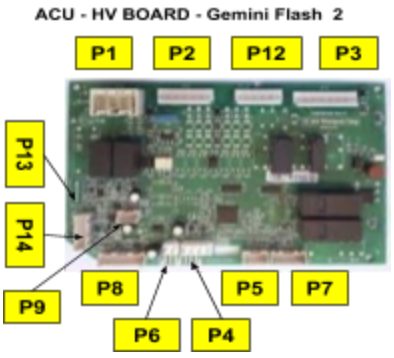
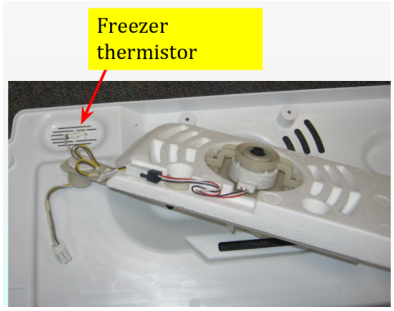
Freezer IM, No ice, No water Tray	**Check temps in freezer and Fresh food Compartments and thermistors** *Do not power down prior to performing these tests. If the unit has been powered down MIN, MAX and AVE temp data will be lost.* *Note: Record Thermistor Data from all refrigerator compartments. Temperature issues in one compartment may cause performance issues elsewhere.* *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* *Thermistor can be checked by placing the thermistor in ice water. Do not get electrical connection wet. The water should be 32 F degrees and leave in for 10 mins and check.* 	If the freezer or RC temps are too warm the IM will not cycle by itself. Perform Thermistor Test on all thermistors in all compartments. Test will show temperature. If any test shows OP (open) or SH (short) check the thermistor wiring at control. Replace as necessary. #1 - RC Therm #2 - FC THerm #3 - RC Evap Therm #4 - FC Evap Them (1st) #5 - Pantry Therm #14 - Door Ice Box Therm #16 - Door IM Tray Therm #17 - Freezer IM Tray Therm #18 - FC Evap Therm (2nd) Perform thermistor Service Test #23 through #36. These provide max, min, and avg temp for the last 6 hours of all thermistors. Record all thermistor Temperatures for all compartments. #23, #28, #33 - RC Therm #24, #29, #34 - FC Therm #25, #30. #35 - Pantry Therm #26, #31 , #36 - Ice Box Therm
	Check Ice maker tray thermistor *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F*	Service Test - 17 Freezer Ice Maker Tray Thermistor 1.Read Freezer Ice Maker Tray Temperature. SH indicates “shorted” thermistor, OP indicates “open” thermistor.

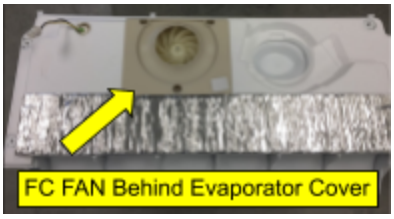
Freezer IM, No ice, No water Tray (cont'd)		2. If the thermistor resistance is out of range, check connections and check ohm reading at board. 3. If the thermistor resistance is out of range at board then check wiring. If wiring is good, then replace IM. HV GF2 board: P7-1 to P7-2
	Check FC Ice maker for proper cycling	Run test 121, Freezer IM test. The display shall show the following transitions as they occur. "00" – Stopped "01" – Moving Counter - Clockwise to Ice Break Position "02" – Moving Clockwise to End of Harvest Location Note: If during Step 2 the Ice Bin Is Full it will jump to Step 4. If Timeout Occurs (60 seconds) you must Execute Step 4. "03" – Reached End of Harvest Location "04" – Moving Counterclockwise Back To Homing Location Note: During Step 4 If Timeout Occurs (60 seconds) End Test. The display shall show the error codes following the execution of the test. "PA" – All Steps Successfully Passed "bF" – Ice Bin Is Full "E1" – Cannot Find Ice Break Position "E2" – Cannot Find End of Harvest Location "E3" – Cannot Find Home "E4" – Multiple Failures. If the ice maker DOES NOT cycle then check for voltage going to the IM.

Freezer IM, No ice, No water Tray (cont'd)		If voltage is present and IM did not move then Check connections to IM and if good then replace the Ice Maker. HV board(GF2) P7-5 to P7-6= 12.7 VDC
	FC Ice Maker Fill Test 	Service Test - 98 Freezer Ice Maker Valve General Test When entering the service test, the FC Ice maker Valve turns on for 7 seconds. If IM does NOT fill then check voltage at valve or for frozen water line. 1. Check voltage at valve for 115VAC. If voltage is there then replace the valve. 2. If voltage is missing then check at the HV board(GF2) board. If NO voltage then replace the board. HV board(GF2) P3-6 to P1-2 = 115VAC FC ICE MAKER WATER VALVE
	Frozen FC Fill Tube 	Service Test - 67 Freezer Ice Maker Fill Tube Heater Test When entering the service test, the Freezer Ice Maker Fill Tube Heater turns on. The display shows "ON." When leaving the service test, the Freezer Ice Maker Fill Tube Heater turns off. 1. Check voltage at the fill tube. If voltage is good, then change the fill tube. 2. If the voltage is missing then check at the HV board(GF2). 3. If there is voltage, then check wiring.

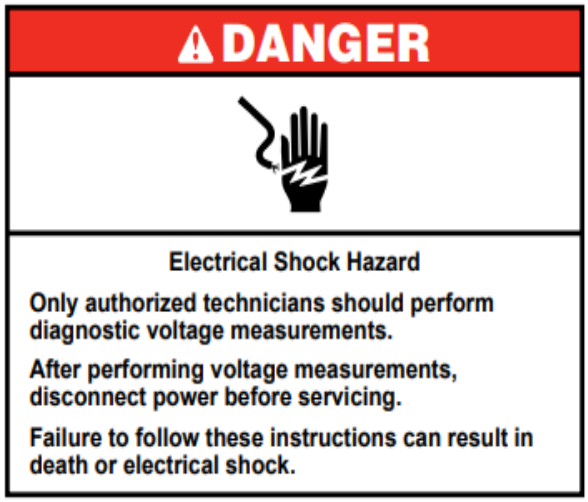
Freezer IM, No ice, No water Tray (cont'd)		4. If there is NO voltage then change the board. HV board(GF2) P3-1 to P1-1= 115Vac
	Check FC Evaporator Fan   	1. Initiate test 56 *FC Fan test* to ensure fan operation. Display will show ON while in service test. 2. If fan is not running, verify there are no loose wiring connections and check voltage at fan motor. 3. If the fan does not have voltage then check wiring and check voltage at the HV board(GF2). 4. If voltage is missing at the HV board (GF2) then replace the board. HV board(GF2) P14-1 to P14-2 ≈ 12.7 VDC
	Check wiring connection	Check for loose connectors or damage to the harness.

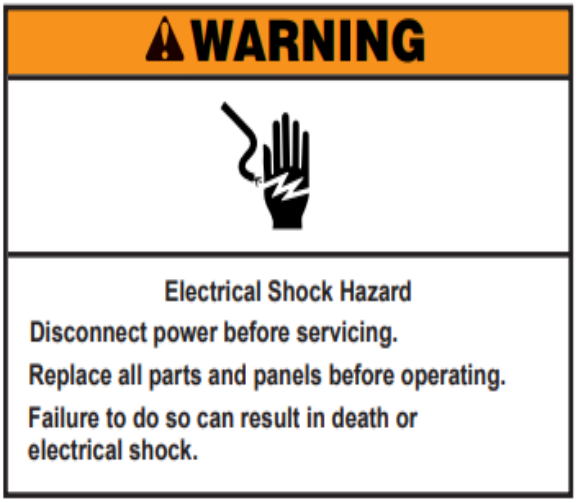
Freezer IM, No ice, water in Tray	**Check FC Thermistors Temp.**	If the freezer is too warm the IM will not cycle by itself. Run thermistor test 02. If temps are not right then Go to symptom “Low or partial cooling in FC section. RC temps are good”
	Check Ice maker tray thermistor *Thermistor Resistance Range: Nominal ohm (Tolerance) @ Temp* *2.7kΩ (2692 - 2858) @77 F* *7.6kΩ (7233 - 7995) @37 F* *8.8kΩ (8325 - 9216) @32 F* *22.7kΩ (21,408 - 24,140) @ 0 F* *37kΩ (34,448 - 39,634) @ -15 F* 	Service Test - 17 Freezer Ice Maker Tray Thermistor Read Freezer Ice Maker Tray Temperature. SH indicates “shorted” thermistor, OP indicates “open” thermistor. HV board(GF2) P7-1 to P7-2
	Check FC Ice maker for proper cycling	Run test 121, Freezer IM test. The display shall show the following transitions as they occur. “00” – Stopped “01” – Moving Counter - Clockwise to Ice Break Position “02” – Moving Clockwise to End of Harvest Location Note: If during Step 2 the Ice Bin Is Full it will jump to Step 4. If Timeout Occurs (60 seconds) you must Execute Step 4. “03” – Reached End of Harvest Location “04” – Moving Counterclockwise Back To Homing Location **Note:** During Step 4 If Timeout Occurs (60 seconds) End Test. The

Freezer IM, No ice, water in Tray (cont'd)		display shall show the error codes following the execution of the test. "PA" – All Steps Successfully Passed "bF" – Ice Bin Is Full "E1" – Cannot Find Ice Break Position "E2" – Cannot Find End of Harvest Location "E3" – Cannot Find Home "E4" – Multiple Failures. If the ice maker DOES NOT cycle then check for voltage going to the IM. If voltage is present and IM did not move then Check connections to IM and if good then replace the Ice Maker. HV board(GF2) P7-5 to P7-6= 12.7 VDC
	Check FC Evaporator Fan  	1. Initiate test 56 *FC Fan test* to ensure fan operation. Display will show ON while in service test. 2. If fan is not running, verify voltage at fan motor. 3. If the fan does not work, then check for voltage at the FC Fan. 4. If the fan does not have voltage then check wiring and check voltage at the HV board (GF2). 5. If voltage is missing at the HV board (GF2) then replace the board. HV board(GF2) P14-1 to P14-2 ≈ 12.7 VDC

Freezer IM, No ice, water in Tray (cont'd)		
	Check Wiring Connection	Check for loose connections or damage to the harness.

DISPENSER ISSUES





Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

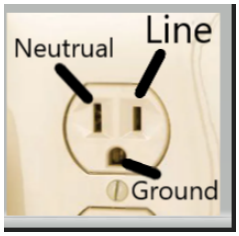
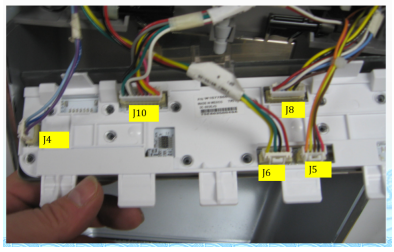
- **Verify the controls are in the off position so that the appliance does not start when energized.**
- **Allow enough space to perform the voltage measurements without obstructions.**
- **Keep other people a safe distance away from the appliance to prevent potential injury.**
- **Always use the proper testing equipment.**
- **After voltage measurements, always disconnect power before servicing.**

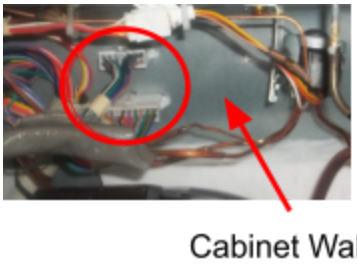
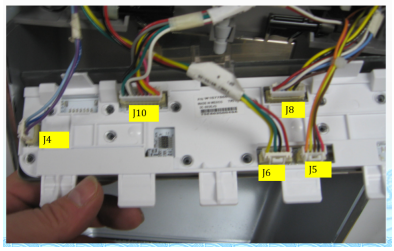
IMPORTANT: Electrostatic Discharge (ESD) Sensitive Electronics
ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an antistatic wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

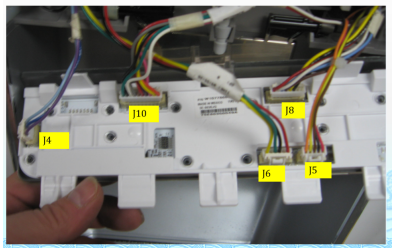
  -OR-

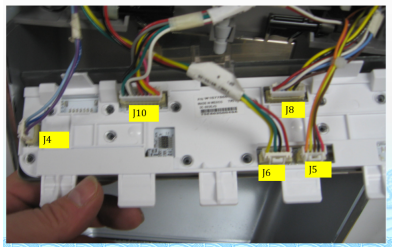
  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

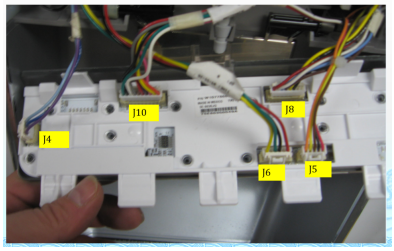
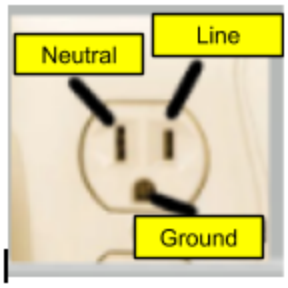
Symptoms	Possible Causes	Corrective Action
Dispenser UI does not have a display	**Check Appliance is Powered** 	Verify unit is plugged in 115VAC at outlet
	Check connection at UI TRITON(dispenser) 	Remove the UI and check all connections. 1. Check for power at the J4 connection. 2. If the UI starts working after checking connections. Possible loose connection. 3. If UI does not work and voltage is present then replace UI. Triton (Dispenser) J4-1 to J4-4 = 12.7 VDC constant

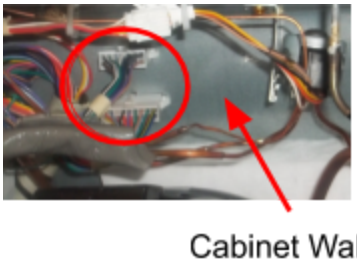
Dispenser UI does not have a display. (cont'd)	**Check Connection at the top of the left Door under Hinge Cover**	Check to make sure all connections are tight, ohm out wiring and check power.
	Check power at the Orion board  	Check all voltage on P16 of the Orion board (In Compressor area) P16-1 to P16-8 = 12.7 VDC P16-2 to P16-7 = 12.7 VDC P16-3 to P16-6 = 12.7VDC P16-4 to P16-5= 12.7VDC 1. If you have power out of board and not at hinge connector check wiring from board to cabinet. 2. In the compressor area there are 2 connections from the Orion board to the cabinet. Make sure both connections are secure. 3. Check for loose pins, backed out wires.
	Check for moisture behind the UI TRITON(dispenser)  	1. If moisture is present check the dispenser heater. 2. Also check the Ice chute door for proper sealing. Triton (Dispenser) J8-1 to J8-2 Dispenser heater pulsed 12.7 VDC.
	Sabbath Mode 	Enter and exit Sabbath mode by pressing and holding °F/°C and SOUND at the same time for 3 seconds. When exiting the Sabbath mode display will not show countdown.

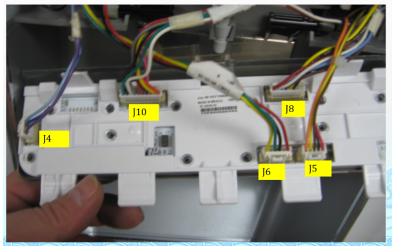
Dispenser UI has display but buttons not responding	**Cycle power to the Appliance**	1. Cycle power. 2. Check connections on the Triton board.

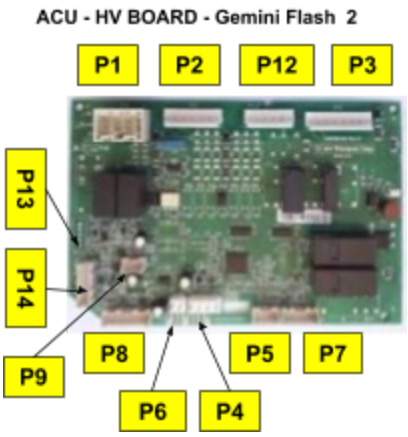
Dispenser UI has display but buttons not responding (cont'd)	TRITON(dispenser)  	3. If reseating the connections does not fix the issue then replace the dispenser board.

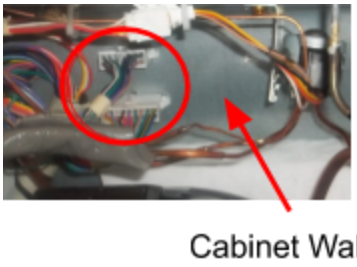
Not dispensing water but will dispense ice	**Check temps in freezer and Fresh Food Compartments**	If freezer or RC temps are too cold the Water Filter could be frozen
	High water pressure	If water pressure is too high the dispenser valve will not work. 1. Remove the filter and see if the unit starts dispensing water. 2. If unit does dispense water then go to Technical Service Pointer #: W11394954. 3. If water still does not dispense go to Check water dispensing valve.
	Check Water Dispensing Valve TRITON(dispenser)  	Service Test - 96 Water Valve General Test Note: When entering the service test, the Water Dispenser Valve turns on for 7 seconds. Be prepared to capture water. 1. If not dispensing water then check the valve for proper voltage. 2. Check for voltage while activating valve test at the Triton Board. 3. Check for voltage at the Valve. 4. If missing voltage at either locations check for loose connections. 5. If no loose connections are found and voltage is not present replace the Triton board.

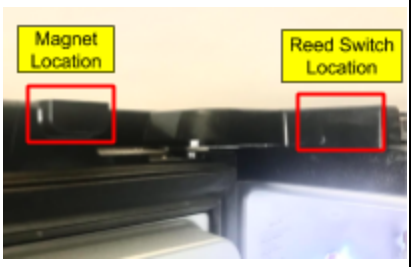
Not dispensing water but will dispense ice (cont'd)		Triton (Dispenser) J8-5 to J8-6 Water valve pulsed 9- 12.7 VDC.
	Check water dispenser paddle TRITON(dispenser)  	Service Test - 93 UI Button and Pad/Paddle Test **Note:** When inside the service test, the numeric display shows "00" for no key press and "01" for key or pad pressing. 1. If buttons do not respond then check connections and paddle switch. 2. If the paddle responds then check the connection at the top of the door. 3. Ohm out paddle switch and replace if bad. Triton (Dispenser) J6-1 to J6-3 = 12.7 VDC, WHEN OPEN
	Check connection at UI	Remove the UI and check all connections
	Check Connection at the top of the left Door under Hinge Cover	Check to make sure all connections are tight
	Check outlet at customer home  	Use a multimeter to check for proper voltage (120VAC)
	Check all Connections in Machine Compartment	1. There are connectors that go through the cabinet In the Machine Compartment.

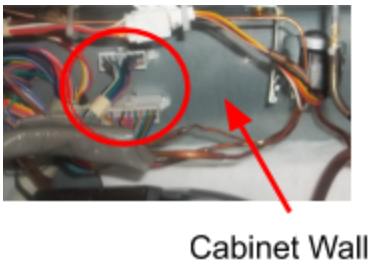
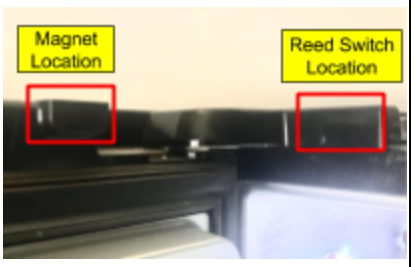
Not dispensing water but will dispense ice (cont'd)		2. Make sure both connections are secure. 3. Check for loose pins, backed out wires. 4. Check connectors on HV board(GF2)
	Check Water tubing for kinks or blockage	Make sure water lines are not blocked or kinked at supply, filter, water tank or door.

Not dispensing ice but will dispense water	**No ice in bin**	Verify the ice maker is turned on. Refer to ice maker troubleshooting
	Check connection at UI	Remove the UI and check for loose connections.
	Check Connection at the top of the left Door under Hinge Cover	Check to make sure all connections are tight
	Check ice dispenser paddle TRITON(dispenser) 	Service Test - 93 UI Button and Pad/Paddle Test Numeric display shows: "00" for no key press "01" for key or pad pressing. 1. If the UI paddle test does not change, then check connections and paddle switch. 2. If the test is good, then go to Check auger motor for power section. Triton (Dispenser) J6-4 to J6-6 = 12.7 VDC, when open
	Check Auger Motor for Power	1. Check auger motor for power 2. If voltage is present at board check at auger motor. 3. If power is present at motor and motor still does not operate then replace motor.

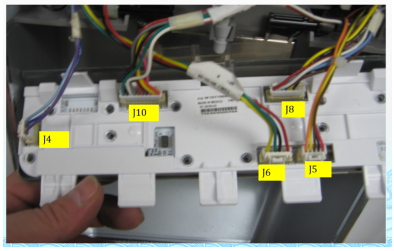
Not dispensing ice but will dispense water (cont'd)		HV board(GF2) P3-7 to P3-8 = 130-140 VDC AUGER OUTPUT, LH RH DOOR CLOSED,
	Check Auger Motor Shaft	Look at the auger shaft for issue of slippage, check installation of the bin.
	Ice Clumping in Bin	1. Check gasket on side of RC door for air leakage. 2. Check IM for leaking water. 3. Check Ice chute door for air leakage. 4. Check the Ice maker compartment door for air leakage at the gasket.
	Ice Chute Door	**Note:** If the ice chute door opens then Triton is working and communicating to GF2 board to run the auger. Continue onto the next section.
	Ice chute clogging	Check for clogging, check chute for anything that might catch ice.
	Check all Connections in Machine Compartment	1. There are connectors that go through the cabinet In the Machine Compartment.

Not dispensing ice but will dispense water (cont'd)		2. Make sure both connections are secure. 3. Check for loose pins, backed out wires. 4. Check connectors on HV board(GF2)

Door alarm not working	**Check to make sure sounds are turned on** **NOTE:** DO NOT PRESS AND HOLD BUTTON.	To turn on the Sound feature press the Sound button. When the button is pressed, the Sound icon will blink 3 times and appear on the display screen. To manually turn off the Sound feature press the Sound button, the sound icon will blink 3 times and turn off.
	Check RC door switches 	Service Test - 73 Right RC Door Switch State "00" Identifies door open "01" identifies the door closed. 1. If test does not work go to Door switch magnet section 2. If the test works correctly then make sure the doors are closing correctly. Orion board: P7-1 to P7-4 RC RIGHT DOOR, SWITCH VOLTAGE = 12.7 VDC, WHEN OPEN Service Test - 74 Left RC Door Switch State

Door alarm not working (cont'd)		"00" Identifies door open "01" identifies the door closed. 1. If test does not work go to Door switch magnet section 2. If the test works correctly , then make sure the doors are closing correctly. Orion board: P7-3 to P7-4 RC LEFT DOOR, SWITCH VOLTAGE = 12.7 VDC, WHEN OPEN
	Check connection at Side door UI and dispenser UI	Make sure all connections at UI are connected.
	Check connections in cabinet at Orion boa  	There are connectors that go through the cabinet In the Machine Compartment. 1.Make sure both connections are secure. 2. Check for loose pins, backed out wires.
	Door Switch Magnets on theRC door missing  	If missing magnets on the door replace the door. (magnets are non-serviceable)
	FC door switches	Check the FC door bracket and switch. **Note:** FC compartment uses a mechanical switch.
	Check RC reed SW	This is in the hinge cover. You can test this by using a meter and checking for open and close.

Door alarm not working (cont'd)	**Make sure door is closing properly**	Make sure the door is closing enough for the magnet in the door to close the REED switch at the door hinge cap.

Ice chute door not opening	**Check Connection at UI** TRITON(dispenser)  	Remove the Triton UI and check all connections
	Check ice dispenser paddle	Service Test - 93 UI Button and Pad/Paddle Test Note: When inside the service test, the numeric display shows "00" for no key press and "01" for key or pad pressing.
	Run test on Ice chute door **Note:** Every 24 hours the ice chute door will open once, but every hour it will try to close.	Service Test - 115 Control Ice Door Motor Using Ice Dispenser Paddle The display will follow the door position during this test using the following designation: • "01" – Closed • "02" – Opening • "03" – Open • "04" – Closing

Light issues

⚠ DANGER

Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

⚠ WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

- **Verify the controls are in the off position so that the appliance does not start when energized.**
- **Allow enough space to perform the voltage measurements without obstructions.**
- **Keep other people a safe distance away from the appliance to prevent potential injury.**
- **Always use the proper testing equipment.**
- **After voltage measurements, always disconnect power before servicing.**

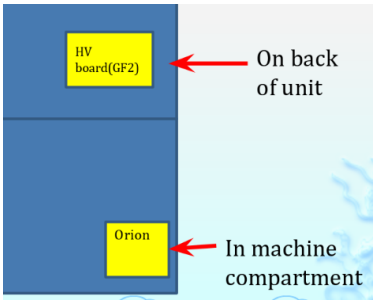
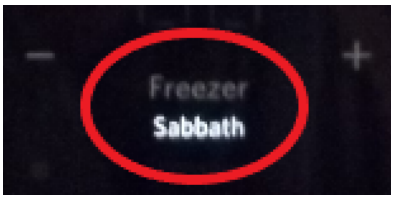
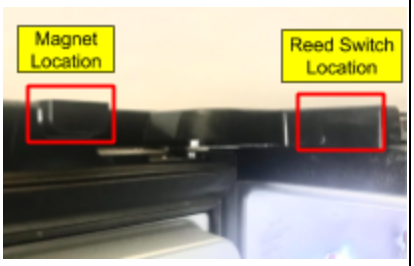
IMPORTANT: Electrostatic Discharge (ESD) Sensitive Electronics

ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

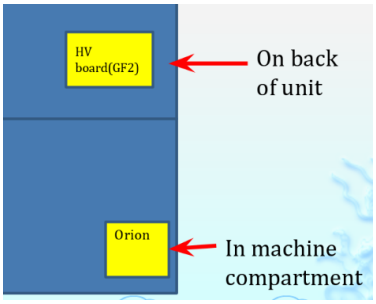
- Use an antistatic wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

  -OR-

  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

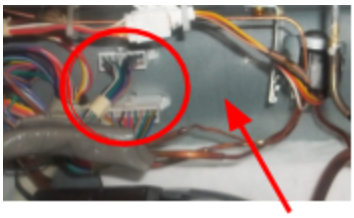
Symptoms	Possible Causes	Corrective Action
No RC lights 	**Sabbath Mode** 	Enter and exit Sabbath mode by pressing and holding °F/°C and SOUND at the same time for 3 seconds. When exiting the Sabbath mode display will not show countdown .
	Check RC door switches 	Run test Service Test - 73 Right RC Door Switch State “00” Identifies door open “01” identifies the door closed. 1. If the test does not work, then go to the Door switch magnet section under Door alarm not working issues. 2. If the test works, then make sure the doors are closing correctly as described in section Door alarm not working issues. Orion board: P7-1 to P7-4 RC RIGHT DOOR, SWITCH VOLTAGE = 12.7 VDC, WHEN OPEN Service Test - 74 Left RC Door Switch State “00” Identifies door open “01” identifies the door closed. 1. If the test does not work, then go to the Door switch magnet section under Door alarm not working issues. 2. If the test works, then make sure the doors are closing correctly as described in section Door alarm not working issues.

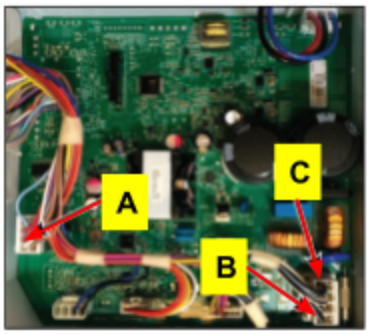
No RC lights (cont'd)



Orion board:
P7-3 to P7-4 RC LEFT DOOR, SWITCH VOLTAGE = 12.7 VDC, WHEN OPEN

Check Power to RC Light





Service Test - 44 RC Compartment Lighting

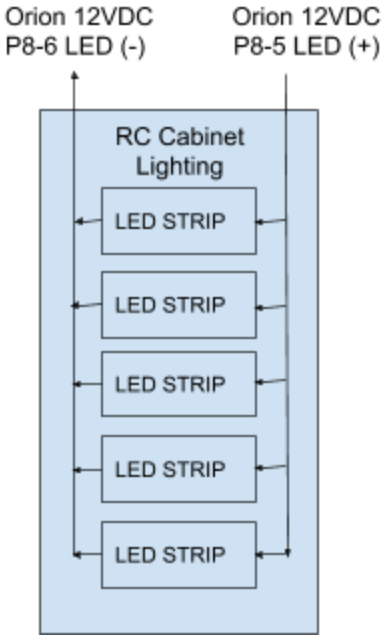
Refrigerator Compartment Lights turn on. The display shows "ON."

When exiting the Service Test the Refrigerator Compartment lights turn off.

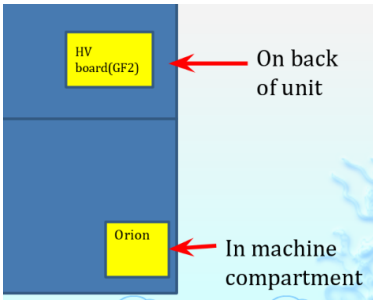
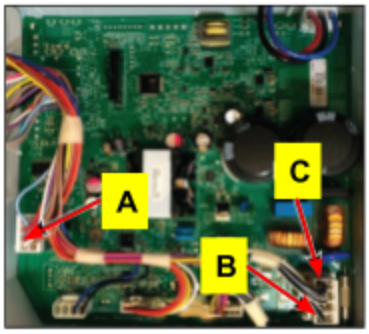
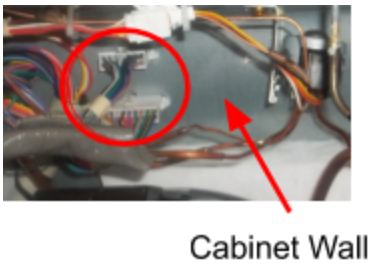
1. Check power at the Orion board for the lights.

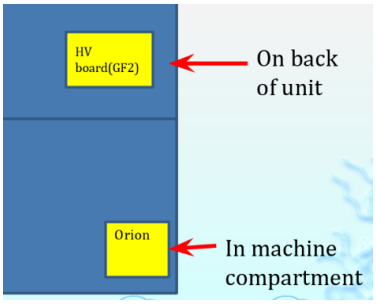
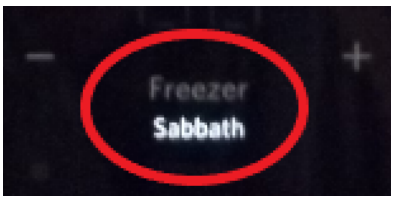
2. IF voltage is present, then check wiring connections at the cabinet for loose connections, wires or pins backed out.

3. If voltage and wiring is good then go to the next section.

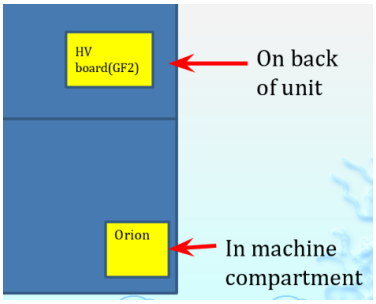


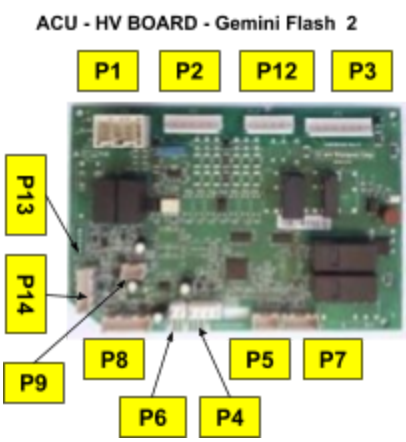
Orion board:
P8-5 to P8-6 = 12.7 VDC WHEN TURNED ON

No RC lights (cont'd) 	**Check power at lights and Orion board**  A. 12.7 VDC Outputs B. 115 VAC Output to GF2 C. 115 VAC Supply	All lights are in parallel circuit. Each light should have 12vdc across it. 1. IF this voltage is missing, then check wiring and power at the Orion board. If 12VDC is not coming from Orion Board, replace. 2. If voltage is present then change light. Orion board: P8-5 to P8-6 = 12.7 VDC when turned on.
	Check connections in cabinet at Orion board 	There are connectors that go through the cabinet In the Machine Compartment. 1.Make sure both connections are secure. 2. Check for loose pins, backed out wires.

No FC lights 	**Sabbath Mode** 	Enter and exit Sabbath mode by pressing and holding °F/°C and SOUND at the same time for 3 seconds. When exiting the Sabbath mode display will not show countdown.
	Check FC door switches	Service Test - 75 FC Door Switch State "00" Identifies door open "01" identifies the door closed. 1. If FC door switch checks good, then go to Check Power to Lights section, 2. If the FC door switch state does

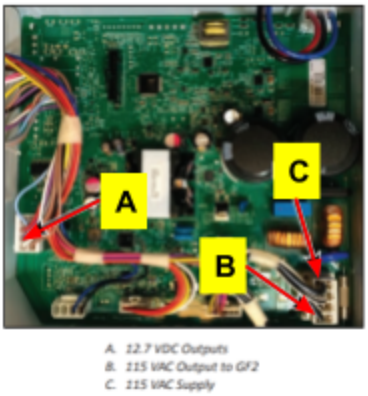
No FC lights (cont'd)





not change in test mode, then check voltage at HV board and door switch.
HV board(GF2)
P3-2 to P1-1 FC DOOR RV MUST BE CLOSED = 115VAC, OPEN = 0V

Check power to lights



A. 12.7 VDC Outputs
B. 115 VAC Output to GF2
C. 115 VAC Supply

Service Test - 45 FC Compartment Lighting

Freezer Compartment Lights turn on. The display shows "ON."

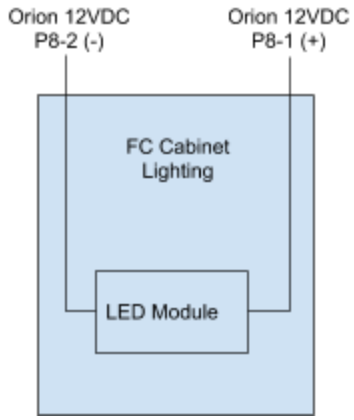
Exiting the service test the Freezer Compartment Lights will turn off.

1. If FC light does not turn on check for voltage at FC light Module.

2. IF FC light turns on then check FC Door Switch and wiring for loose connections or backed out pins and wires.

Orion board
P8-1to P8-2= 12.7 VDC

Check power at FC light



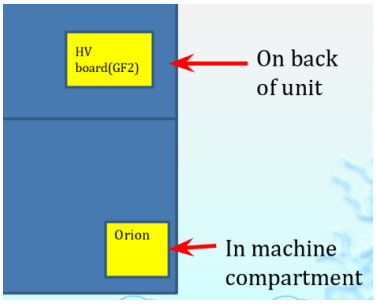
Check for 12VDC at LED.

1. If voltage is present at FC LED then change light.

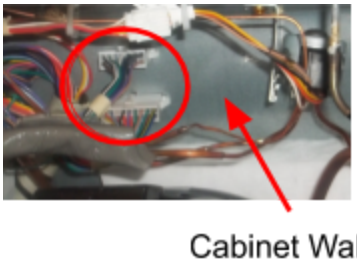
2. If no voltage is present and other lights work then check wiring at power at Orion board.

Orion board
P8-1to P8-2= 12.7 VDC

No FC lights (cont'd)



Check connections in cabinet at Orion board

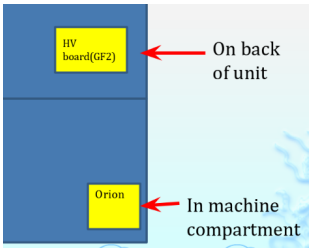


There are connectors that go through the cabinet In the Machine Compartment.

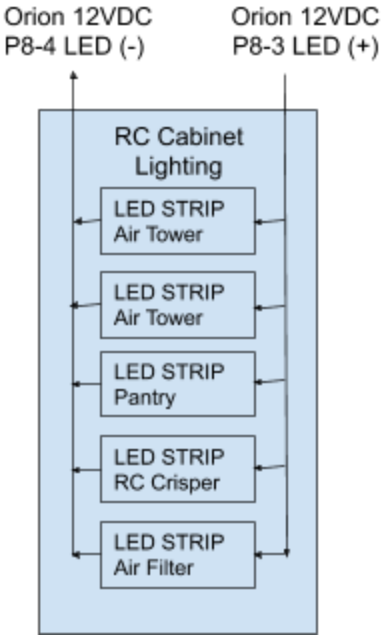
1.Make sure both connections are secure.

2. Check for loose pins, backed out wires

No Light in pantry, air filter or door-in-door lighting



No lights



Service Test - 47 Pantry, Air Filter, and Door in Door Lighting

When entering the service test, the Pantry, Air Filter, and Crisper Lights turn on. The display shows "ON."

Exiting service test, the Pantry, Air Filter, and Crisper Lights will turn Off.

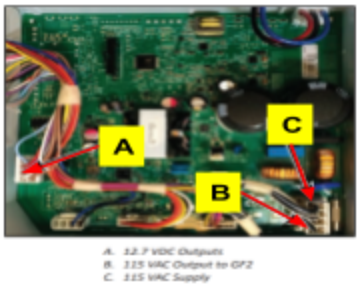
1. Check for power at Orion board.

2. If voltage is present, then check for power at light.

3. IF no voltage at Orion board then replace board.

Orion board
P8-3 to P8-4 = 12.7 VDC when turned on

Check Right RC door switches

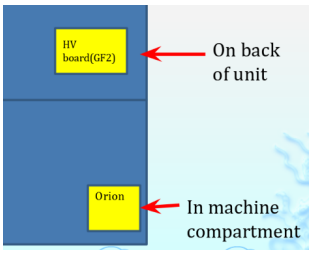


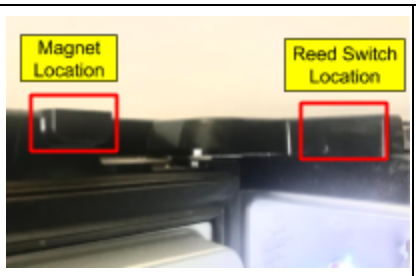
Run test Service Test - 73
Right RC Door Switch State
"00" Identifies door open
"01" identifies the door closed.

1. If the test does not work, then go to the Door switch magnet section under Door alarm not working issues.

2. If the test works, then make sure the doors are closing correctly as

No light in pantry, air filter or door-in-door lighting (cont'd)

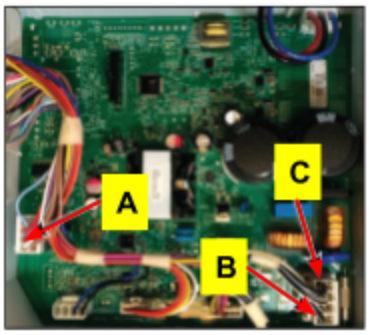




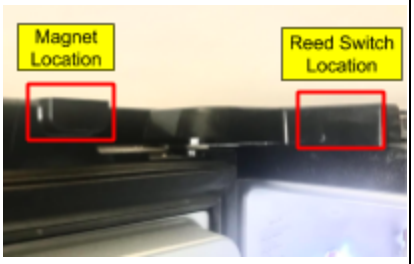
described in section Door alarm not working issues.

Orion board:
P7-1 to P7-4 RC RIGHT DOOR, SWITCH VOLTAGE = 12.7 VDC, WHEN OPEN

Check Left RC door switches



A. 12.7 VDC Outputs
B. 115 VAC Output to GF2
C. 115 VAC Supply



Service Test - 74 Left RC Door Switch State

"00" Identifies door open
"01" identifies the door closed.

1. If the test does not work, then go to the Door switch magnet section under Door alarm not working issues.

2. If the test works, then make sure the doors are closing correctly as described in section Door alarm not working issues.

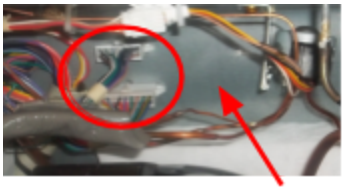
Orion board:
P7-3 to P7-4 RC LEFT DOOR, SWITCH VOLTAGE = 12.7 VDC, WHEN OPEN

Sabbath Mode

Enter and exit Sabbath mode by pressing and holding °F/°C and SOUND at the same time for 3 seconds.

When exiting the Sabbath mode display will not show countdown.

Check connections in cabinet at Orion boar



There are connectors that go through the cabinet In the Machine Compartment.

1.Make sure both connections are secure.

2. Check for loose pins, backed out wires.

Mullion

DANGER

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WARNING

Electrical Shock Hazard

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- **Always use the proper testing equipment.**
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ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an antistatic wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

  -OR-

  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

Symptoms	Possible Causes	Corrective Action

Vertical mullion" Flipper mullion" has moisture	**Look at Technical Service Pointer** #: W11316865 **Serial# Range only:** K80100001-K84200001	This covers issue with Flipper mullion sweating
	Check power saving switch	Confirm the unit is not set to Energy Saver mode by viewing the indicator light above the Energy Saver button on the Temperature Control UI (a/k/a the “SPARSH” or “Main” UI in the Tech Sheet) located on the side of the left refrigerator door. 1. If the Energy Saver light is on, that means the Flipper mullion heater is OFF. Press and hold the button for three seconds to turn it off. If the unit does not have Energy Saver or there is still a condensation concern perform step 2. 2. Go to test 85 Vertical Mullion Heater Activation Mode. When entering the service test, the numeric display shows the current Heater Activation mode. “00” indicates mullion heater controlled by measured humidity. “01” indicates mullion heaters are always on. To advance between control mode use “+” or “-” key. Once desired setting is selected, push “Drawer” key to activate, then “Max Cool” to exit this mode
	Check power to Flipper mullion	Service Test - 63 Vertical Mullion Heater Test Vertical Mullion Heater turns on.

Vertical mullion" Flipper mullion" has moisture (cont'd)		The display shows "ON." 1. If running this test gives you voltage at mullion but NO heat, then replace mullion. 2. If this test gives you NO voltage to mullion, then check wiring and replace Sparsh(side UI) board Sparsh board J6-1 to J6-2= 12.7 VDC FLIPPER MULLION HEATER OUTPUT (LEFT DOOR) Resistance of mullion= 16 ohms

Miscellaneous Issues

⚠ DANGER

Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

⚠ WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

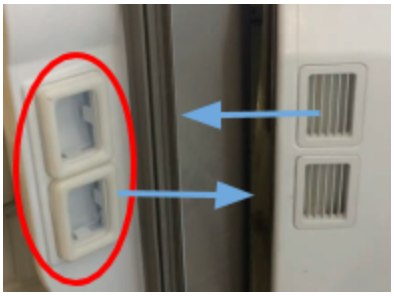
- Verify the controls are in the off position so that the appliance does not start when energized.
- Allow enough space to perform the voltage measurements without obstructions.
- Keep other people a safe distance away from the appliance to prevent potential injury.
- Always use the proper testing equipment.
- After voltage measurements, always disconnect power before servicing.

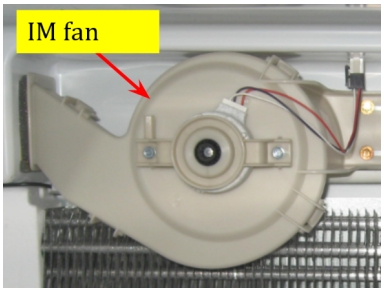
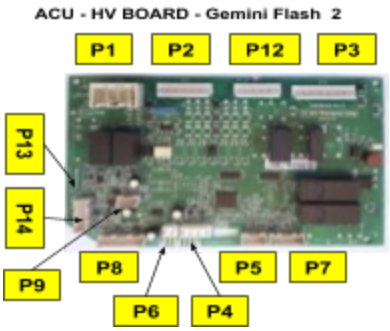
IMPORTANT: Electrostatic Discharge (ESD) Sensitive Electronics
ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an antistatic wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance

  -OR-

  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the antistatic bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in antistatic bag, observe above instructions.

Symptoms	Possible Causes	Corrective Action
Ice bin clumping or melting	**Check gasket on side of RC door for air leakage** 	There are air ducts for the IM bin on the side of the door. Check these gaskets to make sure there are NO gaps or leaking. 1.If gaps are found try to rework the gasket to get a better seal. 2. If still gaps are still present then replace gasket
	Check IM for leaking water	Make sure the IM tray is level and not twisted when in home position and when filling the Ice maker fill tube is not spraying water. 1. If IM tray is twisted, then change the IM 2. If the IM fill tube is spraying out of the tray, then check for debris in the fill tube. 3. If the fill tube is clear of debris, then replace the fill tube.
	Check Ice chute door for air leakage.	Make sure the ice chute door is sealing properly.

Ice bin clumping or melting (cont'd)	**Check ice bin door for air leakage** 	Check the ice bin door to see if the seal is closing on the door liner. 1. If there are gaps then rework the gasket to remove gaps. 2. If the seal still does not seat properly, then replace the gasket.
	Check ice box fan  	Run test 59 to verify IM fan operation. 1. When entering the service test, the Ice Box Fan turns on. The display shows "ON." you should feel air coming out of the top vent that feeds the left hand door. 2. If no air movement is felt, check for loose wiring connections and verify voltage at fan motor. 3. Check for frosting, blocked vents 4. If voltage is present and no blocked vents are found, replace the fan motor. HV board(GF2) P9-2 to P9-3 = 12.7 VDC ICE BOX FAN OUTPUT
	Check ice chute gasket 	Verify the ice chute door is closing and sealing properly Check Ice chute gasket. This gasket is at the end of the chute If this is compressed too much then it could draw air into that area. Replace the chute..

RC compartment moisture, NOT defrost issue	**Check door gasket**	Make sure there are no gaps or tears in the door gasket. 1. If gaps are present, heat with low heat to reform gasket so that it seals properly 2. If the door gasket has tears then replace the door gasket
	Check liner	Check for gaps between the liner and cabinet. If gaps are present then fill in with food grade RTV PN#WP482338
	Check door closing	1. Make sure the door is closing properly and nothing is blocking it from closing. 2. Check Door Alignment and make sure the door is square on the cabinet.
	Check for water leaks	Check for water leaks at the filter and Water valve in the ceiling. Also check that the RC drain line is clear of any restrictions
	Ice chute door and seal 	Verify the ice chute door is closing and sealing properly Check Ice chute gasket. This gasket is at the end of the chute If this is compressed too much then it could draw air into that area. Replace the chute.
	Product loading	Check for proper loading of items. You may have an issue, where containers are blocking air flow and causing warm spots in the section.
	Seal water lines to sections	Make sure all water lines going into the cabinet are sealed. Use permagum or a food grade silicone. RTV PN# WP482338

Frosting in freezer, NOT defrost issue	**Check door gasket**	Make sure there are no gaps or tears in the door gasket. 1. If gaps are present, heat with low heat to reform gasket so that it seals properly 2. If the door gasket has tears or will not seal after reforming, then replace the door gasket
	Check liner	Check for gaps between the liner and cabinet. If gaps are present then fill in with food grade RTV PN# WP482338
	Check door closing	1. Make sure the door is closing properly and nothing is blocking it from closing. 2. Check Door Alignment and make sure the door is square on the cabinet.
	Rails sticking	Check rails to verify they are working properly. 1. If rails are sticking then replace rails.
	Bowed mullion	If the mullon is bowed then the FC door gasket will not seal tight. 1. If the FC gasket is NOT sealing due to mullion bowing , please call the Whirlpool Techline.
	Product loading	Check for proper loading of items. You may have an issue, where containers are blocking air flow and causing warm spots in the section.
	Seal water lines to sections	Make sure all water lines going into the cabinet are sealed. Use permagum or a food grade silicone. RTV PN#WP482338